

Volume XXI. Number 26

UNIV. OF MICH.  
DEC 28 1906

December 26, 1906

# MUNICIPAL JOURNAL AND ENGINEER



WATER SUPPLY.  
PAVING.  
SEWERAGE.  
LIGHTING, SANITATION,  
FIRE AND POLICE  
SERVICE.  
AND ALL  
MUNICIPAL UTILITIES

**MUNICIPAL PUBLISHING CO**

FLATIRON BUILDING

MADISON SQUARE

NEW YORK

## Directory of Consulting Engineers, Engaged in Municipal and Public Work

### CAIRD, JAMES M., Assoc. Am. Soc. C. E. CHEMIST AND BACTERIOLOGIST

Office and Laboratory:  
271 RIVER STREET - TROY, N. Y.  
Water Analysis and Tests of Filter Plants.

### CHILD, STEPHEN

Landscape Architect and Consulting Engineer  
Rooms 511-12-13 Ford Building  
15 ASHBURTON PLACE, BOSTON, MASS.  
S. B. Massachusetts Institute of Technology, 1888. Member American Society of Civil Engineers. Telephone connection. Correspondence solicited.

### City-wastes Disposal Co.

156 FIFTH AVENUE, NEW YORK  
(Organized from the staff of the late Col. George E. Waring, Jr.)

Consulting and Contracting in Sewerage, Sewage Disposal, Garbage and Refuse Disposal and Street Cleaning.

### Denniston & Co.

Builders and General Contractors  
Rochester, N. Y.

### DOW, A. W., Ph.B.

CHEMICAL ENGINEER  
Consulting—Inspecting—Testing  
Specialties—Asphalts, Bitumens, Paving, Tarring and Oiling Roads, Paving Materials, Hydraulic Cements, Water-proofing.  
NEW YORK CITY: WASHINGTON, D. C.:  
120 East 23d Street, 725 Bond Building  
Phone, 3351 Gramercy Phone, Main 2533 Y

### The Duluth Engineering Co.

613 Palladio Building - Duluth, Minn.  
Established 1883. T. F. McGilvray, M. Am. Soc. C. E., M. Am. W. W. Assoc.; W. B. Patton, C. E., Consulting Engineer, Ex-City Engineer, Duluth.  
Water Powers, Water Works, Sewerage, Bridges, Railroads, Electric Railways, Conduits, Paving and Road Making, Lighting and Power Plants, and Mechanical Installations of all kinds.

### FOLWELL, A. PRESCOTT

M. AM. SOC. C. E.  
Easton, Pa.

Consulting and Designing Engineer, Sewerage, Water Supply, General Municipal Work.

### HERING, RUDOLPH, and FULLER, GEORGE W.

HYDRAULIC ENGINEERS  
and SANITARY EXPERTS

170 BROADWAY, NEW YORK

Water Supply, Water Purification, Water Power, Sewerage and Sewage Disposal. Examinations of Projects, Plans, Specifications and Estimates of Cost.  
Construction Superintendent.

### HOWARD, J. W., C.E.E., M.

PAVING EXPERT AND  
TESTING LABORATORY

Write for terms, etc.

1 BROADWAY NEW YORK

### Hudson Engineering and Contracting Co.

92 WILLIAM STREET NEW YORK

Branch Office

518 WALNUT STREET, CINCINNATI, OHIO

Bacon Patent Simple and Compound Air Lift Systems for Pumping from Wells and Surface Sources.  
Water Works and Artesian Well Systems Designed and Installed.

### Lederle Laboratories

518 FIFTH AVENUE - NEW YORK  
F. D. BELL, ERNST J. LEDERLE, Ph.D., D.Sc. J. A. DEGHUEE, Ph.D.  
Sanitary, Chemical and Bacteriological Examinations. Control of Water Supplies. Disposal of Refuse and Garbage.

The Municipal Journal and Engineer should be always on your library table as a constant current reference to all Municipal work.

### LEWIS & KITCHEN

ENGINEERS AND CONTRACTORS

For the Designing and Construction of Septic Tanks Garbage Crematories, Sewage Disposal Works.

ADDRESS

901 Broadway, Kansas City, Mo.  
433 Wabash Avenue, Chicago, Ill.

### MORSE, WILLIAM F.

CONSULTING SANITARY ENGINEER  
17 STATE STREET, NEW YORK

The Disposal of Municipal, Institutional and Trade Waste. The Utilization of Municipal Refuse. The Production of Steam Power from City Waste.

### Newhall, John B., M. Am. Soc. M. E.

HYDRAULIC ENGINEER  
114-116 LIBERTY STREET - NEW YORK  
Telephone, 6259 Cortlandt  
Specializing: Underground Water Supply. Plans for Driven Well Plants. Examinations and Reports.

### Williams, Proctor & Potts,

Incorporated  
ASSOC. MEMBERS AM. SOC. C. E.  
CIVIL AND SANITARY ENGINEERS  
Sewers, Water Works, Sewage Disposal, Water Purification.  
Design and Superintendence  
17 BATTERY PLACE - NEW YORK CITY

### WISE & WATSON

CIVIL AND CONSULTING ENGINEERS

Passaic National Bank Building  
Passaic - New Jersey

Colin R. Wise, City Surveyor of Passaic, N. J.  
Robert M. Watson  
Borough Engineer of Rutherford, N. J.

HIGH GRADES OF

## Natural Asphalt



The A. L. Barber Asphalt Co.

17 Battery Place, NEW YORK

## Books on Water Supply

**WATER-FILTRATION WORKS.**—By James H. Fuertes, member Am. Soc. C. E. 12mo, xviii + 283 pages, 45 figures and 20 half-tones. \$2.50.

**WATER-WORKS FOR SMALL CITIES AND TOWNS.** Describing the methods of construction of the various portions of a water-works plant. —By John Goodell. 281 pages, 53 illustrations. Price, \$2.00 net.

**THE PURIFICATION OF PUBLIC WATER SUPPLIES.**—By John W. Hill, M. Am. Soc. C. E. 8vo. Cloth: 304 pages; 35 illustrations. \$3.00.

**WATER-SUPPLY ENGINEERING.**—By A. Prescott Folwell. Second Edition, Revised and Enlarged. 8vo, xiv + 570 pages, illustrated with 95 figures and 19 full-page plates. Cloth \$4.00.

**WATER-WORKS DISTRIBUTION** A Practical Guide to the Laying Out of Systems of Distributing Mains for the Supply of Water to Cities and Towns.—By I. A. McPherson, A. M. Inst. C. E. 8vo. Cloth, with Folding Plates, Diagrams and Illustrations. Price, \$2.50.

SUPPLIED BY THE

**Municipal Journal and Engineer**

Flatiron Building, New York City



# MUNICIPAL JOURNAL AND ENGINEER

VOLUME XXI.

NEW YORK, DECEMBER 26, 1906.

No. 26

Published every Wednesday by

THE MUNICIPAL PUBLISHING COMPANY

Flatiron Building, Madison Square,  
New York City

Telephone, 6723 Gramercy, New York

Entered as second-class matter, January 3, 1906, at the Post Office  
at New York, N. Y., under the Act of Congress of March 3, 1879.

## TERMS OF SUBSCRIPTION, PAYABLE IN ADVANCE

United States and possessions, Canada, Mexico, Cuba, \$3.00 per year

All other countries . . . . . 4.00 per year

Make all checks payable to The Municipal Publishing Company.

Readers are invited to contribute to the MUNICIPAL JOURNAL  
AND ENGINEER, either in the form of special articles or of letters  
discussing matters of current interest.

It is also desired that the facilities furnished by the reference  
library in this office should be widely known and freely used by  
those interested in municipal affairs. Visitors will be welcomed  
and provided with conveniences for search, and inquiries by mail  
will be promptly dealt with.

## CONTENTS

Strikes, Public Utilities and Government.....	627
To Foster Trade and City Welfare.....	627
Government by Commission. By Sheffield Cowdick.....	628
Chemical Precipitation at Providence.....	628
Incinerator and Lighting Plant.....	629
Water Meters in Washington.....	629
Ohio Manufactures in 1905 and 1900.....	629
MUNICIPAL NEWS .....	630
Legal News—A Summary and Notes of Recent Decisions.....	635
News of the Societies.....	635
THE WEEK'S CONTRACT NEWS .....	
Bids Asked For.....	636
Street Improvements .....	638
Sewerage .....	638
Water Supply .....	639
Lighting and Electricity.....	639
Fire Equipment and Supplies.....	639
Public Buildings .....	639
Street Railways .....	640
Bridges .....	640
Miscellaneous .....	640
Incorporations .....	640
Personals .....	641
Trade Notes .....	642
Patent Claims .....	643
Civil Service Examinations .....	643

## Strikes, Public Utilities and Government

LABORERS and mechanics of all degrees of skill claim absolute freedom to strike; employers claim equal rights to enforce lock-outs. Where either affect by such action only one of numerous similar industries, the public at large is not seriously affected. But when a natural monopoly is involved, such as coal, happenings within the past few years have emphasized the vital concern of the public in the actions of all parties to the controversy; and the time seems to be almost ripe for the government to declare its power and duty to summarily prevent the interference with public comfort and life resulting from disagreements among the joint producers of public necessities.

But where shall the right and duty cease? A few days ago the street cleaning and ash removing employees serving a section of New York struck for higher wages, and for days the streets were cluttered with barrels, boxes and loose piles of ashes and rubbish; for in congested dis-

tricts space is absolutely unavailable for storing the refuse of even a few days. And imagine the condition if garbage in the city's hotel district went uncollected for a week! Chicago's police have begun to organize and affiliate with the American Federation of Labor, following the example of the firemen. What could be done should these strike and refuse to protect the city?

In the Canadian Parliament there was introduced last week a project of law based on the idea that strikes in all public utilities should be illegal; that differences or complaints should be investigated by public authority, work proceeding meanwhile; the award to be accepted by both parties. The discussion and action of the Parliament on this question will well bear watching and studying on this side of the border. If it becomes a law this will be another step toward—paternalism? socialism? Who can say? The socialism of yesterday is the conservatism of to-morrow, and there are indications that the material advance of the 19th century is to be followed by tremendous social and governmental changes in the present one.

## To Foster Trade and City Welfare

PROBABLY no single body of men in any city exerts a greater or more laudable influence upon its welfare, commercial, physical and often sanitary, than those non-official bodies of citizens known as Boards of Trade, Merchants' Associations, and the like. In many cities, especially those which are straining after bigness, their efforts are largely confined to securing the introduction of new commercial and manufacturing enterprises; but even in their efforts in this direction, commendable in themselves, the more fundamental benefits of safety, convenience, sanitation and beauty are striven for as features attractive to outsiders. The motto of the Merchants' Association of New York—"To Foster the Trade and Welfare of New York"—well expresses the general aim of these bodies. And the work this association has performed during the past year may be taken as an illustration of several of the lines along which similar bodies may well exert their influence. Its efforts toward securing better control—or some control—of street openings were referred to in our December 12 number. It has encouraged action toward more complete house numbering; regulation of pushcarts; better fire alarm service; pneumatic tube service for the Post Office; removal of unused car tracks; preventing pollution of the harbor; preventing obstruction of the sidewalks, and other matters of greater or less importance. Such an organization secures for large cities many of the benefits of the New England "town meeting."

## GOVERNMENT BY COMMISSION

### Kansas Cities Will Ask Legislature to Authorize the Adoption of the Galveston System— General Plan

By SHEFFIELD COWDRICK

THE larger cities of Kansas will ask the Legislature this winter to enact a law authorizing them to adopt the commission system of government. The plan under consideration is based upon the government of Galveston, Texas. The Texas system was thoroughly investigated last fall by a committee sent from Topeka, and a bill embodying the system to be adopted in Kansas is being drafted by a committee of lawyers and business men. Besides Topeka, others of the larger cities of the State, including Wichita and Kansas City, are planning to abolish their City Councils and adopt the commission system.

Under the present city charter act all cities and towns in Kansas are governed by Mayor and Council. In cities of the first class the Council consists of two members from each ward. Each Councilman is elected by the voters of his ward only. The Mayor is elected by the voters of the entire city, as are the City Attorney, City Treasurer, and City Clerk. The City Engineer, License Collector, and all inspectors, as well as the subordinate officials and employes in all departments, are appointed by the Mayor and confirmed by the Council.

This system has proved to be unwieldy and inefficient. Councilmen feel themselves responsible to the voters of their own wards rather than to the city at large. Favors are traded back and forth, each Councilman making alliances with others to get as much as possible for his own ward. To this evil is added that of a superabundance of politics. The city officer, from the beginning to the end of his term, is besieged by a horde of place-hunters, each one demanding recognition for the work he did before the election. Politics is a ruling factor in the appointment of policemen, sanitary officers, and even street laborers and janitors.

It is in the hope of improving these conditions that the cities of Kansas have turned toward the commission system. The idea originated in Topeka. Three months ago a number of business men held a meeting and sent Frank G. Drenning, the City Attorney, and W. S. Bergundthal, a former Mayor, on an investigating trip to Texas. The envoys took ten days for their trip, and upon their return made an exhaustive report. This report was presented at a meeting held on December 6, which was attended by a large number of the principal business men of Topeka, as well as a delegation from the Chamber of Commerce at Wichita. At this meeting committees were elected to draw up a bill and work for its passage by the Legislature.

There are two general forms of commission government in operation in Texas. One is that of Galveston, the other that of Houston. Kansas is considering a plan based upon that of Galveston. This system puts the city government in the hands of a Mayor and four commissioners, each in charge of some department of municipal

administration. One commissioner has charge of the Police and Fire Departments, another the finance and revenues, another the waterworks and sewers, and another the streets and public buildings. All the other city officials and employes are elected by the commission. Each commissioner nominates the appointees in his department, and they are confirmed by the board. In this way each commissioner is made directly responsible for some general division of municipal administration, and is allowed practically to choose the men who are to work under him. The different departments are allotted to the commissioners by vote of the board itself after the election, but it is practically understood in advance which commissioner will be put in charge of each department. In all legislative matters the vote of a majority of the commission is supreme. The Mayor has no veto power.

This is substantially the system which the larger towns of Kansas want to adopt. The bill that is being drawn up at Topeka will make few changes from the Galveston system. Some of the advocates of the commission system, notably Mayor W. H. Davis, of Topeka, want the number of commissioners limited to three, but there is little chance that this plan will be carried out. Most of the men interested in the scheme think a commission of five is preferable.

It is not the intention to make the commission system compulsory upon any city of the State. The bill that is to be introduced in the Legislature will be drawn up so as to provide that any city of the first class may adopt this system by vote of the people at a special election.

### Chemical Precipitation at Providence

THE annual report of the City Engineer of Providence, R. I., for 1905, which has just reached us, contains an excellent summary of data relative to sewage purification plant there. According to this, out of a total population of 198,635, 178,000 were served by sewers of which 204 miles were combined and 10 miles storm; the daily amount of sewage averaging 22,707,000 gallons, with a maximum of 55,400,000 gallons and a minimum of 8,300,000. The amount of lime used per million gallons of sewage was 599 pounds and 51.5 pounds of copperas. Of the total albuminoid ammonia 48.2 per cent. was removed, and 86.44 per cent. of that in suspension; 3,040 gallons of sludge were produced per million gallons of sewage treated, containing 7.89 per cent. of solids; this was pressed into cakes and hauled by steam train to a dump one-eighth mile away. The effluent is discharged in the Providence river under 36 feet of water. The cost of treatment per million gallons was \$3.13 for the chemical precipitation and \$2.66 for the sludge disposal. In pressing the sludge 24.87 pounds of lime were added per 1,000 gallons of sewage to "cut the slime." The sludge was first pumped by Shone ejectors to storage reservoirs; thence by gravity forcing receivers, which forced it into the presses under 60 to 80 pounds pressure per square inch. Eighteen filter presses were used, each with 43 to 54 plates. These produced daily 85.7 tons of cake, containing 26 per cent. of solids.



## INCINERATOR AND LIGHTING PLANT

### New York City Has Most Successful One in Operation in This Country—Official Test of Efficiency

ATTENTION of municipal officials generally throughout the country has been attracted to the operations of the incinerator and power plant of New York City, which is recognized as the most successful ever installed in America. This interest has been enhanced recently as the result of a test made under direction of George Francis Seaver, Professor of Electrical Engineering of Columbia College, and Mr. F. L. Stearns, C. E., of the Department of Street Cleaning. The plant, the installation of which was described in the MUNICIPAL JOURNAL AND ENGINEER of May 2, page 402, furnishes steam to the Department of Bridges, which, in an adjoining building, operates engines and direct-connected generators for furnishing electric current for the lights of the Williamsburg bridge.

The test extended over a period of six hours, during which official readings were taken and calculations made, as follows:

Refuse burned.....	40,497 lbs.
Refuse burned per hour.....	6,749 lbs.
Yards burned.....	293
Weight, per yard.....	138 lbs.
Cubic yards burned per hour.....	.48
Grate area.....	192½ sq. ft.
Burned per square foot of grate per hour.....	39.2
Total ash.....	6,070 lbs.
Percentage of ash to amount burned.....	14.9%
Heating surface of boiler.....	3,780 sq. ft.
Water evaporated per hour from and at 212° F.....	15,458 lbs.
Horsepower per hour.....	455
Refuse burned per boiler horsepower.....	14.8 lbs.
Water evaporated from and at 212° per lb. of refuse.....	2.29 lbs.
Steam pressure.....	143 lbs.
Total heat derived from refuse in B.T.U.....	89,300,000
Average voltage.....	253
Average amperes.....	579
Rubbish burned per kilowatt hour.....	46 lbs.

As compared with estimates that had been made, based on the experience of the Street Cleaning Department with the Forty-seventh street incinerator, the amount of water evaporated per pound of rubbish is notable. One and a half pounds of water per pound was the evaporative capacity of the rubbish, and the high percentage obtained here is attributed to the work of the economizer which heats the feed water to a high degree of temperature. The amount of rubbish burned per square foot of grate area, 39.2 pounds, is less than the maximum estimate of 60 pounds. The amount of refuse burned per boiler horsepower developed 14.8 pounds, seems very moderate for this class of work. The rubbish burned per kilowatt-hour, as shown on the face of the report, 46 pounds, is explained by the fact that the boilers were run to their full capacity, 455 horsepower being developed, whereas not all of the power was used in generating current. While the power plant is designed to operate from the combustion of refuse, the boilers are provided with coal-burning grates, which are used whenever the amount of refuse is insufficient.

## Water Meters in Washington

In the annual report of the Commissioners of the District of Columbia, submitted to Congress this month, extended reference is made to the work of installing meters in the District, and its effect upon consumption. An appropriation of \$100,000 was made for the present fiscal year for the purchase and installation of water meters, "to be placed in such private residences as might be directed by the Commissioners, the meters to remain the property of the District." The cost is to be repaid from water revenues at the rate of \$20,000 per year, beginning with the fiscal year ending June 30, 1908.

"This action of Congress established the policy of installing meters in private residences; but at the rate at which the appropriation was made it will be from five to seven years before all such residences will be supplied with meters, as the cost will be from \$500,000 to \$750,000. A contract has been let for furnishing these meters and a force organized to install them. The Commissioners are in receipt of numerous requests from citizens to have the meters installed, and it is their intention to comply with all such requests as far as practicable and, in addition, to select a portion of the city in which to begin the installation. About 4,000 such meters will be installed this year.

"It is required by law that all large consumers shall place water meters in their premises at their own expense. Such large consumers are determined to be those where the water rent amounts to over \$25 per annum. Two thousand four hundred and one water meters of various sizes and kinds are now in use in the District, which is an increase of 297 over the previous year.

"The advantage of installing meters in private residences was demonstrated by experience during the year in installing such meters in squares 234, 235 and 236. A test made of these squares prior to the installation of the meters showed an average daily consumption and waste of about 830 gallons in each premises. Under the meter system this has been decreased 30 per cent., and at the end of the year the consumption showed an average of about 573 gallons for each premises. This consumption will probably decrease about 10 per cent. more, as the use of water during the first three months was excessive and will be reduced by reason of the fact that the users will understand that they are charged for all water unnecessarily used."

## Ohio Manufactures in 1905 and 1900

During the year 1905 there was manufactured in the State of Ohio, according to the latest bulletin of the Census Bureau, 522,199 tons of sewer pipe, valued at \$2,939,772, as against 466,469 tons in 1900, valued at \$1,680,724. Electrical conduits were manufactured last year to the value of \$167,200, and in 1900 of \$315,305. In 1905 21,846,000 vitrified paving brick were manufactured, valued at \$200,846, and in 1900 26,853,000, valued at \$208,924. Sewer pipe, according to this, increased in value from \$3.60 to \$5.63 per ton in the five years, and paving brick from \$7.78 to \$9.19 per thousand.

## MUNICIPAL NEWS

**ALABAMA, Montgomery.**—Code Commissioner Mayfield has made a report to the Governor in which he recommends the passage of a **Municipal Bill** which he has prepared. This bill is believed to be in accordance with the wishes of the officials of a number of cities who have recently been discussing the question. Cities and towns are to be divided into four classes, according to population, as follows: First class, 25,000 and over; second class, 2,000 to 25,000; third class, 100 to 2,000; fourth class, unincorporated villages of less than 100 population. The question of incorporation into a town is to be left to a vote at an election to be held within thirty days from the date of an ordinance; this ordinance is to be passed at the request of 500 citizens in places large enough to be in the first class, of 100 for the second, and of 50 for the third. Elections are to be held biennially in May. City Councils of cities of the first class would consist of seven Councilmen-at-large and one from each ward. Councils of cities of the second class would consist of the Mayor and two Councilmen from each ward. In towns of the third class the Council would include the Mayor and six Councilmen.

**ARIZONA, Phoenix.**—A former Alderman, during his term of office, became so versed in **Waterworks** lore that on retiring and resuming his occupation of developing suburban property he designed and built in his latest division a complete waterworks. A six-inch well was sunk sixty feet, although water was struck at a depth of twenty-three feet. From this well the water is elevated to a 5,000-gallon tank, from which it is distributed to consumers through inch-and-a-half mains.

**CALIFORNIA, Marysville.**—At a meeting of the Woman's **Civic Improvement Club**, Mrs. Mary Flannery presiding, it was decided to outline the various parks within the limits of the city with young trees, as a preliminary step toward their substantial and permanent improvement. Trees will also be planted on Fifth Street, the main entrance for the new electric road.

**Los Angeles.**—The city has dedicated a tract of land 300 x 300 feet in Solano avenue, nearly opposite the Solano avenue school, to the **Playground Commission**, to be used as another public playground. Both the Eighth street site and the Solano avenue site are now at the disposal of the commission. The children will be able to take possession just as soon as enough money has been raised to equip either or both with the necessary gymnastic apparatus.

**San Francisco.**—Superintendent McLaren, of the Park Department, reports that the work of restoration of Golden Gate **Park** is progressing satisfactorily, and that the work will be completed by the new year. Already the work on the Spreckels music stand, the children's playgrounds, the memorial museum, and the hospital is nearly completed. A mammoth land turtle and several smaller members of the species have been received from the Gallapagos Islands. They were presented by an expedition sent out by the Academy of Sciences.

**Vallejo.**—The city of Vallejo, which is already the owner of a half-million-dollar **Waterworks**, will spend \$10,000 more, in conjunction with the government appropriation of \$15,000, to lay an additional submarine main to the Mare Island Navy Yard. The Government purchased \$25,000 worth of water from the city for which it pays 18 cents per thousand gallons.

**COLORADO, Colorado Springs.**—The question of what acts are necessary to establish the **Grade** of a **Street** has arisen from the Mayor's veto of a resolution of Council establishing a grade for Huerfano Street. The City Attorney expresses the opinion that as a resolution to establish a grade is not an act calling for the expenditure of money, and therefore is not subject to the Mayor's veto power, Mayor Hall believes that grades should be established by ordinance, although the practice for years has been to establish grades by a resolution in conformity with an ordinance passed in 1886. Explaining the matter further City Attorney Robinson says that according to the general rule the legislative power of the Council must be exercised by ordinance and the executive power by resolution.

**CONNECTICUT, New Haven.**—Mayor Studley favors a **Bond Issue** and at a recent meeting of the special Aldermanic Committee gave a statement of the financial conditions of the city, showing that in the past five years after paying all regular expenses, building three new schools, three engine houses, one police precinct station, a public bath-house, the Broadway pavement, the Kimberly avenue bridge, adding thirty-six men to the Fire Department, and issuing \$100,000 in sewer bonds, the debt of the city has been reduced \$400,000. With this saving, the Mayor stated, the city is justified in paying out \$272,000 for needed improvements and the beautifying of the city.

**DISTRICT OF COLUMBIA.**—The city has laid very little new **Pavement** this year owing to the refusal of contractors to bid for asphalt paving work within the limit of the cost (\$1.65) set by Congress. If this situation continues the alternatives seem to be to lay the old pavement under a new plan or to lay some new kind of pavement. A municipal asphalt plant, it is thought, would be one way of solving the difficulty. This would be feasible, as there is an abundance of skilled labor and supervision to be had within the city. As regards the choice of a new pavement, the experimental wooden block pavements now being laid under the direction of Gen. George H. Harries, Vice-President and General Manager of the Washington Railway and Electric Company, will be watched with interest. The railway will try a stretch of creosoted wooden blocks on Four-and-a-half street, south of Virginia avenue.

**FLORIDA, Pensacola.**—At a meeting of the Board of Public Works a resolution was passed stating that, inasmuch as the Board is prohibited from placing **Garbage** outside the city, in the city, and in the clay-pit, that it had no place to place this garbage, and recommends the appropriation of a sum sufficient to provide a crematory of a capacity large enough to dispose of the garbage of the city in a sanitary and acceptable manner.

**GEORGIA, Augusta.**—An ordinance has been passed making it unlawful to lay any kind of **Sidewalk** other than cement within the fire limits of the city, and prescribing the specifications according to which the sidewalk shall be laid under the direction of the Commissioner of Public Works. In case of violation of the ordinance the offender, if convicted, shall be made to pay from \$5 to \$25 fine or to serve from ten to fifty days on public works.

**Crawfordville.**—Early next year the city will be shining forth with brilliance, as a fifty-candlepower **Acetylene** gas light will be posted at every street corner. This was made possible by the passing of a bonding act by a vote of 70 to 4.



**ILLINOIS, Chicago.**—It is believed that Chicago's **Traction Troubles** are over insofar as they are caused by a disagreement between the city and the traction companies. According to the terms of the agreement, the companies will at once invest about \$40,000,000 in improving their properties. The city, on its side, will have an option to purchase at \$50,000,000 on the lines as they stand now, plus cost and ten per cent. on future improvements, on notice of intention to buy to be given on the first of any year and to become effective in six months. Besides this, the city is to have 55 per cent. of the net earnings of the system.

**Joliet.**—The Health Commissioner, desiring to have an opinion on the quality of the city **Water**, sent samples to the University of Illinois and received the following report: "Color, muddy; total residue on evaporation, 2,345; chlorine in chlorides, 12.0; oxygen consumed, 2.3; nitrogen as free ammonia, .032; nitrogen as alluminoid ammonia, .96; nitrogen as nitrites, .015; nitrogen as nitrates, .080; alkalinity, 614.5." Now he wants to know whether the water is good to drink.

**La Salle.**—Prof. Edward Barton, of the University of Illinois, Director of the State Water Survey, recently delivered a lecture on the **Water Problems** of Indiana, with special reference to the local condition. The water supply of La Salle was pronounced as excellent and the lecturer presented proof that the city supply was not derived from the Illinois river, but came from underground sources.

**Moline.**—The National Humane Association has offered the city a fine **Drinking Fountain** providing the city agrees to keep it in repair. A rich member of the society who died recently bequeathed a large amount to be devoted to the building of fountains whereat people, horses and dogs might drink. These fountains are now being placed in many towns. They are quite ornamental, being made of bronze and iron; stand six and a half feet high, are heavily built and cost \$1,000 apiece.

**Greenwood.**—An indignation meeting was recently held to protest against the dilatoriness of the Citizens' Water and Light Company in improving the **Water Supply**. The facts were developed that the Board of Trustees had arranged terms for a new franchise and that the company had so far failed to accept them. The condition of the franchise offered was that the company should supply the city and citizens with water equal in quality to what is known as second strata water. The quantity of the supply is insufficient, for at a recent fire when the initial pressure was 70 pounds the pressure dropped so that a stream would not break a window pane twenty feet away.

**INDIANA, Evansville.**—Fire Chief Dunlevy has called attention to the **Blocking** of the **Streets** in the theater districts by automobiles and carriages between the hours of ten and eleven o'clock at night. The portion of the street not occupied with private vehicles is blocked by street cars so that on a recent occasion the Chief's buggy was held in the blockade five minutes. There is no danger of a fatality from the apparatus coming upon the crowd unexpectedly, besides the damage likely to be caused by delay.

**Vincennes.**—It seems probable now that a **Soldiers' Monument** will be erected in Harrison Park. The city has several cannon presented by Congress that could be mounted about the base. The G. A. R. had \$500 on hand available for the purpose and the Board of Works has offered to give \$1,000 if a few hundred dollars more can be obtained by popular subscription.

**IOWA, Maquoketa.**—The citizens strongly indorsed the Davenport-Dubuque **Interurban Railway** project

at a public meeting and subscribed for \$3,000 of the stock of the company. Citizens of Andrew, seven miles north, are adopting the same method of inducing the railroad to run through their town.

**KANSAS, Wichita.**—Mr. J. W. Purdy, of Pittsburg, Pa., in behalf of the **Water Company**, in which he is the largest stockholder, has made the following alternative propositions to the city:

"Proposal No. 1.—Disinterested appraisers to be appointed, one by the city, one by the water company, these two to appoint the third appraiser; appraisers to be disinterested experts. Appraisers to value the plant and properties of the water company and consider all elements of value except future franchise value, the same to be excluded; bonded indebtedness not to be considered. If property is purchased to be turned over free of debt. This option to remain in effect one year from date of appraisalment.

"Proposal No. 2.—Water company to continue to own and operate property and to be entitled to earn its legitimate operating expenses, repairs and taxes, then 8 per cent. per annum upon the value of the property as determined by the appraisers and 2 per cent. additional for depreciation, all above those amounts to be returned to the city. Statement of earnings and expenses to be rendered semi-annually by the water company and to be verified by auditor appointed by the city."

**KENTUCKY, Louisville.**—According to a report of City Live Stock Inspector Dr. S. A. Bradley and Dr. Frank T. Eisenman, State Veterinarian, the condition of Louisville's **Dairies** is alarming. As photographs were taken during the inspection, a record was made of conditions that cannot be disputed. The recommendations made are a complete renovation of the stables, a prompt cessation of the feeding of distillery waste and the establishment of more sanitary means of drainage. The principal trouble comes from the use of brewery waste. Regarding this custom the dairymen say they cannot feed otherwise and make a profit under existing conditions. Some of them receive only 16 cents per gallon for their milk; for 30 cents per gallon they say they could feed hay and grain.

**Paducah.**—A **Conduit** owned by the city and leased to the telephone, telegraph and electric-lighting companies is a favorable plan which Mayor Yerser will suggest to the City Council. In the meantime the city will derive an annual revenue of \$2, as rental, for each pole used for wires by telephone or telegraph companies. The ordinance which provides for this rental charge is similar to one in force in Memphis, and has been approved by the decisions of the highest courts. The belief is that the number of poles in residence sections will be reduced by half and that conduits will be found cheaper downtown.

**LOUISIANA, New Orleans.**—It was proposed to pass a **Wide Tire** ordinance requiring all vehicles to be provided with 5-inch tires when carrying loads of from 4,500 to 8,000 pounds. The draymen considered that this would be a hardship for them because a wagon with a 5-inch tire is difficult to pull on the unpaved streets in the soft soil of New Orleans. A compromise was made on an ordinance requiring 4-inch tires after September next. The general sentiment as expressed at the meeting was that the only way to protect the paved streets was to build more of them. This would distribute the traffic and would overcome the objection to the use of wide tires on soft ground.

**MAINE, Calais.**—City Marshal Crossman has declared war on **Slot Machines** and says that after proper notice to the lessees of these machines he will make a round trip with a wagon and collect all he finds. Complaints have been made by children and adults, and after a thorough investigation the Marshal has come to the conclusion that the player has little chance to win.

**Portland.**—Complaints about **Slippery** condition of **Sidewalks** have been frequent and it is said that Christmas shopping has been seriously interfered with. Commissioner of Public Works Fernald has sent a street department gang to sprinkle sand on all the walks. Besides this, the department is ready to supply every household with sand delivered in bags for sprinkling on the icy walks.

**MARYLAND, Baltimore.**—Mayor E. Clay Timanus has approved an ordinance "to promote the **Public Health** by prescribing the manner in which water liable to breed mosquitoes shall be cared for within the limits of the city." The measure provides for the use of screens over vessels of standing water, for stocking ponds with mosquito-destroying fish or keeping the surface covered with oil; for the prevention of standing water by proper drainage and a number of other provisions to the same effect.

**Easton.**—The Mayor and Council of the town, which has about 3,500 inhabitants, are desirous of obtaining a **Lighting System** and would consider applications for a franchise for acetylene or electric lighting and are prepared to grant a long-term franchise for lighting the streets. At the present time there is an oil gas plant in the city and a Westinghouse electric plant. Gas is sold for \$1.50 and \$2 a thousand for fuel and illuminating purposes respectively. Electric lights are furnished at flat rates and no meters are in use.

**MASSACHUSETTS, Springfield.**—At a mass meeting to consider the advisability of reclaiming the river front it was announced that at his death Everett H. Barney would leave his estate, valued at over \$1,000,000, to the city of Springfield. The money will be used to carry out plans for a **River Front Park** and a boulevard of several miles. Mr. Barney is sole owner of the Barney & Berry skate factory and has no near relatives. He is 71 years old.

**Taunton.**—For the purpose of protecting the city's **Water Supply** land bordering on the shore of Assawampsett pond has been purchased by Engineer Hammond, of the Taunton Pumping Station, acting for the city. Assawampsett pond is the largest body of fresh water in the State. It is a leading summer resort, and quarrels have been frequent on account of the restrictions placed on the cottagers since Taunton began to take water from the lakes. There is much hostility to these regulations which were imposed by the State health authorities, and the whole question of troubles and inconveniences has again been brought forward by the buying of land.

**Waltham.**—Among the **Municipal Improvements** of the year are a Manual Training School building which is considered a model of its kind. It is of a mill type of construction, is well lighted and equipped. Other improvements have been the construction of a sewer to Roberts' Mills to protect the water supply and a sewer from the Crescent park district which crosses an arm of the river where a centrifugal electric pump will be installed to lift the sewage from a well, a distance of 35 feet, into the main sewer.

**MICHIGAN, Grand Rapids.**—General Manager Freshney, of the Board of Public Works, has presented his **Annual Report** covering the waterworks, electric-lighting plant and the engineering department. Perhaps the most interesting thing about the report is the comparison of the cost of lighting the city under public ownership and the cost when light was bought from a private corporation. The city paid a private corporation \$97 per light per year. Now the total cost per lamp, according to Mr. Freshney, is but \$58.42, which

shows a saving of \$38.58. Mr. Freshney figures out the cost of the present lights carefully, as follows: Maintenance and operation, \$32.56; loss to the city through non-taxation, \$3.26; depreciation, \$11; bond interest, \$6.88; interest on the balance of the investment which was raised through general taxation. The remainder of the report shows an inventory of all the property controlled by the Board of Public Works to date. The book value of the total is figured at \$1,740,925. Depreciation brings the sum total down to \$1,297,823.

**Marquette.**—The Municipal Light and Power Commission will extend its **Hydro-Electric Plant** on the Dead river by building a new generating station, concrete dam, flume and equipment at a cost of \$97,000. The projected plant will develop 1,500 horsepower and will be capable of being developed to 4,500 horsepower by the addition of more units. Additional power is badly needed and the fact that \$20,000 has been earned by the old plant over and above all expenses is the inducement which justifies the new undertaking.

**MINNESOTA, Duluth.**—Some municipal statistician of inquiring mind has figured out that practically every citizen of Duluth is a law breaker under a strict interpretation of the **Ordinances**. Among the ordinances frequently broken are the following: anti-spitting; waste paper; allowing animals to run at large; leaving horse unhitched; riding bicycles on sidewalk; building ordinance; concealed weapons; curfew; muzzling dogs; speed ordinance; gambling; injuring public library books; injuring trees; obstructing sidewalk; use of hose on lawns and sidewalk; cleaning ice from sidewalk; smoke ordinance; coasting; obstructions on streets.

**MISSISSIPPI, Columbus.**—The City Council has decided to open Main street by the purchase of property so as to make a **Thoroughfare** from the river to the eastern boundary line. For the crossings of this street Mayor Gunter has recommended cement blocks.

**MISSOURI, Kansas City.**—The city now has 500 **Street Lamps** burning natural gas. The new gas is regarded as much better than the artificial gas for street lights when used with mantels. Recognizing the superiority of gas over electricity for lighting the residence streets, the Council is giving the gas lamps preference over the electric arc lights, except at business corners. Each of the gas lamps now set will cost \$9 a year, or \$3 less than when artificial gas was used.

**NEBRASKA, Omaha.**—The Water Board has voted to rescind the action of the City Council taken in 1903 providing for the purchase of the Omaha **Water Company's Plant**, and named a committee to procure plans and estimates for a new plant to be built by the city, which it is believed will cost about \$4,000,000.

**NEW HAMPSHIRE, Dover.**—Mayor-elect White is strongly in favor of the plan of burning the **Street Lights** all night. The present lighting contract does not expire until 1907, but it contains a clause giving the city the option to change to an all-night service at a fixed price. It is understood that the gas company is willing to quote an even lower price.

**NEW JERSEY, Jersey City.**—Mr. Carl Bannwart, Secretary of the **Shade Tree Commission**, of Newark, delivered an address before the Jersey City Board of Trade in which he reviewed the work of the Commission. He said that 40.7 miles of streets had been planted with trees on both sides. Altogether 4,997 trees have been planted. During the past year the cost has been \$1.98 per tree, although the average price for the three years is \$2.78.



**Newark.**—The new **Municipal Building** was dedicated on December 20 with impressive and fitting ceremonies. President James E. Howell of the Building Commission opened the ceremonies with a speech in which he told the history of the work on the first City Hall Newark has ever owned. The building was begun in the fall of 1902, under the direction of J. W. and W. C. Ely, of Newark, assisted by Mowbray and Uffinger, of New York City, and Prof. F. W. Chandler, of Boston, Mass. The building cost two and a half million dollars. Mayor Doremus accepted the building in behalf of the city. Mayor-elect Haussling spoke of the Newark of the future. An inspection of the building was made by the members of the city government and 1,600 invited guests. In the afternoon a banquet was spread at the Krueger Auditorium.

**Trenton.**—The Board of Aldermen has authorized a special committee to compel the Public Service Corporation to give the citizens of Trenton a better quality of **Gas** than they are now receiving. Three years ago the Public Service Corporation abandoned its local gas plant and has since piped gas from Camden, a distance of 35 miles.

**NEW YORK, Elmira.**—Four million dollars' worth of **Building** has been done this year or is still under way—a remarkable record for a city of 40,000. Besides many dwellings built, the following manufacturing plants have been extended: Elmira Water, Light and Railway Company, various improvements, at a cost of \$900,000; the American La-France Fire Engine Company, extension of plant, \$200,000; American Bridge Company, \$750,000; Bennett Incinerating Company, \$20,000; Kennedy Valve Company, \$500,000.

**New York.**—Water Register Padden reports that \$5,097,734.14 was received in **Water Rents** for eleven months ended November 30, an increase of \$481,953.11. This was the largest increase in the history of the bureau. He says that 8,000 more meters were installed and that the work of inspecting the buildings will go on until every unmetered pipe in New York has been discovered and a meter ordered put on. The Interborough Rapid Transit Company is the largest individual user of water in the city, its annual bill aggregating \$150,000. The Waldorf-Astoria Hotel is next, with an annual bill of between \$35,000 and \$40,000. The Register expects to collect even larger sums in penalties from harbor craft when he gets his new patrol boat, funds for which were recently voted.

The Municipal Art Society recently gave a dinner at which city officials and others interested in **Municipal Art** were present. Comptroller Metz spoke of the beauty of the De Witt School buildings recently completed at a cost of \$1,500,000. Mr. Frederic Crowninshield suggested a course of lectures, with slides. "Show the people the pictures of the best bridges and public buildings in the world," he said, "and in this way you can cultivate the public taste for improvement and in the love of the beautiful."

**Tonawanda.**—According to the recommendation of George W. Booth, engineer for the National Board of Fire Underwriters, the **Water Systems** of the cities of Tonawanda and North Tonawanda are to be siamesed. The engineer's report says: "There is a possibility of failure of supply in any direct pumping system, and especially so when the plant is housed in a non-fire-proof station and supply is liable to interruption on account of anchor ice. This possibility, and the fact that practically entire dependence is placed upon the works to furnish direct hydrant streams, without the use of fire engines, in both these cities, making it only prudent to adopt every possible safeguard."

**NORTH CAROLINA, Wilmington.**—A Franchise has been granted to the Consolidated Company to double track the greater portion of the city line and to extend new lines to the southern and eastern ends of the city. The railway company agreed to contribute \$3,000 towards building a retaining wall on one of the streets over which the line runs and gave bond to restore streets to a good condition and to maintain the surface of the street between the tracks and for one foot outside.

**NORTH DAKOTA, Fargo.**—At a special meeting of the new **Water Commission** at the Mayor's office, Prof. E. F. Ladd, of the Government Experiment Station, stated that the Red river water, properly filtered, would contain a smaller proportion of solids than the artesian water, and if first-class filtration could be assured the river water filtered would be the best; but the filtration plant would have to be first-class and a filtration expert would have to look after the plant constantly and see that the filter was properly cleaned as often as necessary, or extraneous matters would enter into the water and render it impure. The best filtered water, however, would not be altogether free from disease germs, though the mud in the river water is the substance in which most of the disease germs, such as typhoid, germinate.

**OHIO, Cincinnati.**—The **City Club** of Cincinnati is the name of a new organization formed to promote good government in the municipality. The present intention of the club is to meet at luncheon every Saturday and discuss local matters of public interest. The sole requirements for eligibility to membership are a belief in the separation of municipal government from State and Federal politics, as well as a willingness to pay for the lunch. No fees are required.

**Columbus.**—The plan for **Lighting** the Central Market district was taken up at a recent meeting. Already a double electric arch is nearing completion at Town and Fourth streets, and it was decided to erect three single arches on Town street, between Fourth and High. One of these will be at Third and Town, a second, half way between Third and High, and the third half way between Third and Fourth. The work on these will be started shortly and will be rushed to completion.

**OREGON, Portland.**—The street car system of the Portland Railway, Light and Power Company is almost torn up as a result of a **Strike** over the wages of conductors and motormen. The police have made over fifty arrests but seem powerless to control the mob.

**SOUTH DAKOTA, Deadwood.**—Unless something unexpected happens, the **Paving** of streets will begin next spring. This is in the face of an apparently unfavorable decision in an injunction case involving paving legislation begun last year when the proceedings were informal. Entirely new legislation will be begun and care will be taken to avoid technical errors.

**PENNSYLVANIA, Scranton.**—Fifty-four new cases of **Typhoid Fever** were reported in a single day, making three hundred cases since the first of December. According to the reports of City Bacteriologist F. F. Arndt, tests which he has made and which have been confirmed by the State Bacteriologist, are negative so far as showing the presence of typhoid bacillus in the water. From inspection of a map kept at the Bureau of Health, showing the location of every case and the source of the water used in different sections of the city, Dr. Arndt believes that the water supply from the Elmhurst dam is responsible for the epidemic. This supply has been shut off, the mains flushed and people ordered to boil water before drinking.

**Wilkes-Barre.**—The Water Committee and City Solicitor McHugh have spent nearly a week inspecting a proposed new source of **Water Supply**. The proposed water shed belongs to Colonel Bruce Ricketts and is located in Wyoming county, 2,200 feet above Wilkes-Barre. Colonel Ricketts has three artificial lakes at this point, one containing 315 acres, with an average depth of 12 feet; one of 109 acres, with an average depth of 20 feet, and one of 50 acres, with a depth of 10 feet. All the water in this shed has been diverted into these three basins, assuring an ample storage supply for dry seasons, and as all it has to do is to run downhill to reach the Wyoming Valley towns, Wilkes-Barre included, the Water Committee are inclined to regard Colonel Ricketts' Wyoming watershed as an ideal source of supply.

**RHODE ISLAND, East Providence.**—Feeling that the situation regarding the spread of **Rabies** was serious enough to warrant immediate attention, the East Providence Business Men's Association unanimously passed a resolution urging the Town Council to take action regarding the restriction of the liberties allowed dogs and that pending the action of the Council the Health Officer should see to it that the greatest precaution was taken to guard the safety of the citizens. Drs. J. B. McKenna, J. M. Moore and Simeon Hunt were appointed a committee to look after the matter.

**SOUTH CAROLINA, Anderson.**—Chief Smith of the **Fire Department** received the charter for the Anderson Firemen's Benevolent Association and now the department may be placed in the list of the fire companies of the State that have complied with the new law and will receive benefits of firemen's insurance.

**SOUTH DAKOTA, Vermillion.**—Professor Todd, formerly State Geologist, warns the public that its **Artesian Basin** may run dry. A decided decline in pressure and volume has appeared in most places where many wells have been made, and this decline is approximately proportioned to the age of the wells. Often the decline may be attributed to the failure of casing, choking or underground leakage, but it is a fact that new wells fall far short in capacity as compared with similar wells made fifteen or twenty years ago. Regarding measures tending to conserve the supply, Prof. Todd says that all wells flowing into rivers or otherwise going to waste should be stopped up. The construction of wells for power should be prohibited. A flow of a limited number of gallons a minute, perhaps fifteen, should be allowed free to each quarter section, and all excess above that be discouraged by a tax. Careful records should be kept of all wells in the State. There should be a law making it a misdemeanor to allow water to be wasted through defective fixtures or otherwise, and in general a strict supervision of underground water supplies should be maintained by the State.

**TENNESSEE, Chattanooga.**—A committee appointed by the General Council to consider and report on the question of the erection of a suitable building for a **City Hall** has reported in favor of the Stone Fort as the proper site. As regards the building, after consulting with Architect R. H. Hunt, the committee recommends the construction of a City Hall and a city auditorium under separate roofs. For the City Hall proper, \$193,193 is recommended, and for auditorium \$111,696 is thought to be sufficient. The building of the auditorium should be deferred for the present.

**Knoxville.**—More fire stations, more equipment for the **Fire Department**, more men to man the present equipment, better construction of buildings, and better streets are the recommendations of Chief Filmore Tyson, of the Louisville Fire Department, following

his investigation of the Knoxville department. The condition of many of the streets was found to be so bad as to make good work on the part of the Fire Department impossible, while some streets were practically impassable. The general standard of building construction was pronounced as poor and not designed to retard fires. The importance of hook and ladder companies, Chief Tyson considers, is underestimated and their membership insufficient. Eight men, he considers, are few enough to man a hook and ladder truck. Their work is not all in raising the truck and mounting the ladders. They should set the pace, they should force openings, do the chopping, provide smoke holes and ventilation, and help the pipe men get the hose lines in the buildings.

**TEXAS, Austin.**—A special session of the City Council was held to discuss the proposition made by Thomas Moore, of Elizabethtown, N. J., for rebuilding the **Dam** across the Colorado River. Mr. Moore is promoting the building of an interurban electric railway between Austin and Lockhart, and it is intended that the dam shall furnish the initial power for operating the proposed line. Final action was deferred.

**Dallas.**—B. S. Wathen and associates have made application for a franchise to furnish **Natural Gas** in Dallas at a rate of \$1.10 per 1,000 cubic feet. W. H. McGoldrick agrees to furnish the same kind of gas for 50 cents per 1,000 cubic feet, or for less than one-half the cost promised by Major Wathen. Mr. McGoldrick is President of the Abilene Gas, Light, Fuel and Power Company and is connected with Eastern companies.

**El Paso.**—The Board of Health is of the opinion that much of the **Typhoid** fever prevailing is due to celery and other vegetables, and has recommended that the city enforce a rigid inspection of all vegetable wagons as well as milk and water. Much of the celery is said to be shipped into the city in cars which may be disease breeders.

**VIRGINIA, Norfolk.**—Mayor Reed is engaged in the preparation of his annual holiday proclamation, prohibiting the sale of **Toy Pistols**, which played such havoc with the juveniles several years ago. The sale of these pistols to minors is prohibited by law. It is the annual custom of the Mayor to issue a reminder to dealers in firearms, directing them to observe the law as it applies to the sale of these dangerous little toys.

**WASHINGTON, Seattle.**—A radical change in the policy of developing Seattle's **Park System** is recommended in a lengthy report of John C. Olmsted, landscape architect. Mr. Olmsted is opposed to the policy of spending all available park funds in small parks and playgrounds, leaving the general scheme of parkways and large landscape parks to be developed in the future. Such a policy is not wise in the long run from a financial point of view, and would result in a lack of parks embodying natural woods located within the borders of the city. Therefore he favors more purchases of land, notably in the Mount Baker subdivision. Land on Lake Washington or on the Sound should also be purchased together with rights to land under water.

**WISCONSIN, Madison.**—The fact that the Teamsters' Union of Madison is maintaining a monopoly on the **Municipal Stone Quarry** has stirred up a hornets' nest here. The union decided that none other than union wagons could take stone from the city quarry, or union men will tie up the city's work by striking. Alderman Doran went to get some stone at the quarry, but was turned away because he did not belong to the union. Now he is raising a storm in the City Council and an investigation will be made.



## LEGAL NEWS

A Summary and Notes of Recent Decisions  
—Rulings of Municipal Interest

## Baltimore Water Bonds

**Bond vs. Mayor and Council of Baltimore.**—Judge Schmucker has delivered an opinion approving the decision of the circuit court which prevented the Mayor and City Council from submitting to the voters an ordinance authorizing the issuance of a loan of \$5,000,000 for the improvement of the municipal water supply. It was held that the ordinance authorizing the loan was void because no such loan could be issued without an enabling act of the Legislature.—Court of Appeals, Annapolis, Md.

## District Is Liable

**Conroy et al. vs. Sanitary District of Chicago.**—The court sustains the demurrers filed by the plaintiffs. Orders entered in the several causes are, in effect, that the district cannot flood and damage property adjoining the channel without making just compensation. It was the contention of the district that under the acts of 1822 and 1827, whereby the State of Illinois was empowered to dig the Illinois and Michigan canal, that it was made exempt from prosecution on the grounds that the United States, in granting it authority to form a drainage district, thereby vested in it certain reserves in the matter of overflows, when further improvements of the kind were being made. This, the court contends, is not so, ruling that the district is held, by the act by which it was created, to be responsible for all such damage.—Circuit Court of Will County, Joliet, Ill.

## Diversion of Water

**American Woolen Company vs. Kennebec Water District of Waterville.**—The bill in equity was dismissed. Justice Emery's rescript is as follows: Lakes and ponds of more than ten acres in extent are known as "great ponds" and are under the ownership and control of the State for the benefit of the public. The State can at its discretion authorize the diversion of their waters for public purposes without providing compensation to riparian owners upon the ponds or their outlets. When the Legislature has directly granted authority to divert water from a great pond for public purposes without requiring as a prerequisite any proceedings for condemnation or for the ascertainment and payment of damages, the grantee can begin with diversion at once, and a bill in equity to restrain such diversion until such proceedings are had cannot be sustained.—District Court, Waterville, Me.

## Election and General Statute

**Swigart et al. vs. The City of Chicago et al.**—Where the Legislature passes a law containing a referendum clause and providing a method of submitting the question of the adoption of the law to the voters, the method so provided must be followed, notwithstanding the general statute would control the question except for such special provision. The ballot used in the election of November 7, 1905, in the city of Chicago, upon the question of adopting

the amendment to the act relating to the incorporation of cities and villages, conforms to the provision of the amendment itself for submitting the question to the voters, and hence the election is valid notwithstanding the ballot does not comply with section 16 of the Australian Ballot Law, which controls, generally, the submission of such questions to the voters.—State Supreme Court, Chicago, Ill.

## Period of Franchise

**New York Electric Lines Company vs. City of New York.**—The company applied for a mandamus against the city authorities requiring them to issue a permit to it to construct subways and establish a telephone system in the city of New York. The court holds that a right granted more than twenty years ago to construct subways in the public streets, where no attempt has been made to act under it, and where, in the meantime, the public authorities have provided ample means for the use of those desiring such a use as was authorized by this grant, may well be considered as having lapsed and cannot be revived, in violation of the rights acquired by others and to the public disadvantage.—Appellate Division, New York Supreme Court.

## Effective When Passed

**Byers vs. Leavenworth.**—Judge Gillpatrick held that an ordinance passed by the city of Leavenworth becomes effective immediately upon its passage, that very night, and not when it is published in the official paper of the city. Therefore the suit of James Byers et al. against the city of Leavenworth enjoining it from collecting the special paving tax for the paving of South Fourth street from Cherokee south to Elm was ended.—District Court, Leavenworth, Kan.

## NEWS OF THE SOCIETIES

**American Public Health Association.**—At the thirty-fourth annual convention in the City of Mexico, December 3-7, among the papers read were the following: "Notes on the Hygiene of Yellow Fever," by Dr. Alfred J. J. Austin; "Brief Notes on the Propagation of Yellow Fever," by Dr. Ernesto Duplan; "Considerations on the Way to Stamp out Yellow Fever," by Dr. Eduardo Lamicq; "Sanitary Inspection of Dwelling Houses in the City of Mexico," by Dr. Domingo Orvananos; "Water Supply in Cities," by Dr. Enrique del Bosque. The last-named paper referred especially to the water supply of the City of Mexico. This supply at present amounts to 120 litres per day for a population of 400,000. At the present time the government is constructing an immense waterworks. A paper, read by Dr. J. Millan Ponce, dealt with observations on the census and mortality tables of the City of Mexico. The writer expresses the opinion that the city contains a population of 553,000, and that therefore the mortality rates have been much lower than reported.

**The Engineering Association of the South.**—About eighty members attended the eighteenth convention at the Kimball House, Atlanta Ga., December 14. President Julian Kendrick, City Engineer of Birmingham, Ala., presided. On the following day the members were escorted over the city by Capt. R. M. Clayton, City Engineer, to inspect the engineering work now in progress. In

the evening a banquet was tendered the visitors by the local members. The following were elected officers for the ensuing year: President, A. V. Gude, Atlanta; vice-presidents, Granberry Jackson and G. H. Harris, Birmingham, and R. M. Clayton, Atlanta; secretary and treasurer, H. M. Joens, Nashville; directors, Hunter McDonald, G. M. Ingham, and C. B. Wilson, all of Nashville.

## Calendar of Meetings

December 26-28.

**American Economic Association.**—Nineteenth annual meeting, Providence, R. I.—Winthrop M. Daniels, Secretary, Providence, R. I.

December 27-January 2.

**American Association for the Advancement of Science.**—Annual meeting, New York City.—L. O. Howard, Secretary, Cosmos Club, Washington, D. C.

**American Institute of Social Service.**—Exposition, New York City.—Dr. William H. Tolman, Director, 287 Fourth avenue, New York.

**Engineers' Society of Western Pennsylvania.**—Annual meeting, Pittsburg, Pa.—F. V. McMullin, Secretary, 410 Pennsylvania avenue, Pittsburg, Pa.

**American Institute of Architects.**—Annual convention, Washington, D. C.—Glenn Brown, Secretary, Washington, D. C.

**Michigan Engineering Society.**—Annual Convention, Detroit, Mich.—F. Hodgman, Secretary, Climax, Mich.

**National Association of Cement Users.**—Annual meeting, Chicago, Ill.—W. W. Curtis, Secretary, 585 Caxton Building, Chicago, Ill.

**New England Water Works Association.**—Annual meeting, Boston, Mass.—Willard Kent, Secretary, Narragansett Pier, R. I.

**Iowa Engineering Society.**—Annual convention, Ottumwa, Ia.—A. W. Ford, Secretary, Iowa City, Ia.

**Wood Preservers' Association.**—Annual meeting, Memphis, Tenn.—C. W. Berry, Secretary, Laramie, Wyo.

**American Society of Civil Engineers.**—Fifty-fourth annual meeting, at the House of the Society, 220 West 57th street, New York City.—Charles Warren Hunt, Secretary.

**Northwestern Cement Products Association.**—Annual convention, St. Paul, Minn.—Martin T. Roche, Secretary, 410 Pioneer Press Building, St. Paul, Minn.

**Indiana Engineering Society.**—Annual meeting, Indianapolis.—C. C. Brown, Secretary, Commercial Club Building, Indianapolis.

**The Engineers' Club of Philadelphia.**—Annual meeting, Philadelphia, Pa.—W. L. Webb, Secretary, 1122 Girard street, Philadelphia, Pa.

**American Society of Heating and Ventilating Engineers.**—Annual meeting, New York City.—W. M. Mackay, Secretary, P. O. Box 1818, New York City.

**Illinois Society of Engineers and Surveyors.**—Annual meeting, Peoria, Ill.—E. E. R. Tratman, Secretary, 1636 Monadnock Block, Chicago, Ill.

**Ohio Local Health Authorities.**—First annual conference, Columbus, Ohio.

**Canadian Society of Civil Engineers.**—Annual meeting, Montreal.—Prof. C. H. McLeod, Secretary, 877 Dorchester street, Montreal, P. Q.

**National Brick Manufacturers' Association.**—National convention, St. Louis, Mo.—Theo. A. Randall, Secretary, Indianapolis, Ind.

**Wisconsin Gas Association.**—Annual meeting.—Henry H. Hyde, Secretary, Racine, Wis.

**New England Association of Gas Engineers.**—Annual meeting, Boston, Mass.—N. W. Gifford, Secretary, New Bedford, Mass.

**Association of Ontario Land Surveyors.**—Annual meeting, Toronto.—Killaly Gamb'a, Secretary, 405 Temple Building, Toronto, Ont.

## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Buildings, Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

### BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>Street Improvements</b>				
Ohio	Cincinnati	December 26, noon	Roadway Fifth Ave.; inc. 1,550 sq. yds. broken stone, 3,030 lin. ft. curb and gutter, 15,500 cu. yds. grading; estimate, \$12,642.	C. N. Dannenhowe, Engineer. County Commissioners.
Pennsylvania	Ridgway	December 26	Constructing 15,200 ft. of road.	Gibson County Commissioners.
Indiana	Princeton	December 27, 2 P.M.	Repairing gravel roads.	
Indiana	Petersburg	December 29	Gravel roads: 3 miles and 1,700 ft. Road No. 1, and 3 miles and 298 ft. Road No. 2.	T. W. Bassinger, County Auditor.
Louisiana	New Orleans	December 31, 1 P.M.	Asphalt paving, curb, gutter, etc., six sts.	Wm. J. Hardee City Engineer.
Iowa	Oskaloosa	January 1	Paving street.	C. E. Monroe, City Clerk.
Ohio	Cincinnati	January 4	Paving Lawrence alley with brick, Betts St. with asphalt; laying curb, drains, etc.	M. J. Keefe, Clk. B. P. S.
Ohio	Steubenville	January 4	Paving Washington St. with Hillside block.	T. W. Vance, Clk. Bd. Pub. Serv.
Indiana	Terre Haute	January 5, 11 A.M.	Grade and gravel two roads, 2,500 and 10,490 ft. long in Pierson Township.	J. W. Denehie, County Auditor.
New York	Newburgh	January 7, noon	Laying 18,700 sq. yds. vitrified or asphalt block or bitulithic on two streets.	Everett Garrison, City Engineer.
New York	Amityville	January 7	Macadamizing, etc., Broadway and Park Ave.	Chas. W. Darling, Village Engineer.
Indiana	Knox	January 7	Gravel road Railroad Twp.; cost, \$6,006.	L. M. Ransbottom, County Auditor.
Indiana	Spencer	January 8, noon	Constructing gravel road, 2 $\frac{1}{2}$ miles long.	Owen County Commissioners.
Ohio	Troy	January 8, noon	Paving 35,400 sq. yds. at Public Square.	L. A. Ziegenfelder, Clk. B. P. S.
Ontario	Toronto	January 8, noon	Erecting municipal asphalt plant.	E. Coatsworth, Mayor.
Indiana	Bedford	January 8, 1 P.M.	Constructing gravel roads.	Lawrence County Commissioners.
Indiana	Versailles	January 8, 1 P.M.	Building roads in townships; 4,200 ft. Laughery, cost, \$18,085; 3,170 ft. Otter Creek, \$6,895; 4,940 ft. Brown, \$9,497; 2,527 ft. Washington, \$5,600.	
Indiana	Bloomfield	January 8, 1:30 P.M.	Gravel and macadam roads, Wright Twp.	Nicholas Volz, Co. Auditor.
Indiana	Columbus	January 8	One mile gravel road, Hawcreek Township.	Wm. A. Deekard, County Auditor.
Indiana	Rockville	January 9	Grade, drain, g'vel, etc., 2 roads, Penn. Twp.	Wm. A. Morris, County Auditor.
Indiana	Bloomington	January 9, 2 P.M.	Gravel road, 8,275 ft. long, Van Buren Twp.	Henry Grubb, County Auditor.
Virginia	Norfolk	January 10, noon	Asphalt or bitulithic paving and granite curb, two streets; also macadam, Colby Ave.	S. M. Kerr, County Auditor.
Ohio	Cleveland Heights	January 15	Grade, lay macadam and sidewalks.	W. T. Brooke, City Engineer.
Indiana	Princeton	February 1	Constructing 11 miles macadam gravel road.	W. G. Phare, Fairmount, P. O.
Pennsylvania	Titusville	February 1	Paving streets; estimated cost, \$70,000.	Harry R. Embree, Co. Aud. H. A. Holstein, City Engineer.
<b>Water Supply</b>				
New York	New York	December 26, 2 P.M.	Rubber valves, castings, bar iron, steel, brick, Portland cement, etc.	John H. O'Brien, Water Com'r.
New York	Brooklyn	December 26, 2 P.M.	Erecting eight water-tube boilers in re-modeled Ridgewood Pumping Station.	John H. O'Brien, Water Com'r.
Illinois	Chicago	December 27, 11 A.M.	Constructing 8 ft. water tunnel, 28,350 ft. long.	Wm. L. O'Connell, Com. Pub. Wks.
Oregon	Klamath Agency	December 28, 2 P.M.	Constructing water system.	Horace G. Wilson, Superintendent.
Indian Territory	Ada	December 28	Pumping engines, valves and sluice gates, Portland cement, and 16,000 ft. 8- and 10-inch pipe.	
Washington	Tacoma	December 29	Furnishing air-lift pumping plant.	A. P. Wood, Mayor.
Virginia	Port Monroe	December 31, noon	Constructing 50,000-gal. steel water tank.	Owen Woods, Com'r Pub. Works.
Ohio	Norwood	December 31	Extending mains in three streets.	Capt. R. H. C. Kelton, Q. M.
Alberta	Calgary	December 31	Furnishing cement, lead pipe, corporation cocks, C-I water pipe and sewer pipe.	L. H. Gebhart, Village Clerk.
Saskatchewan	Arcola	January 2	Erecting steel water tank, 60,000 Imp. gal. cap; and 60,000 gal. wood water tank on steel superstructures, 40 ft. high.	R. E. Speakman, City Engineer.
Louisiana	Jonesville	January 2	Sinking an artesian well.	J. S. Bush, Secretary.
Pennsylvania	Philadelphia	January 4, noon	Pumping engine for Lardner's Point Station.	T. M. Mathews, Mayor.
Pennsylvania	Philadelphia	January 4, noon	Coal handling machinery and pockets, Torresdale pumping station.	John R. Hathaway, Dir. D. P. W.
Illinois	Chicago	January 5, 11 A.M.	Furnishing 2,800 tons 4 to 16-inch C-I water pipe, and 130 tons special castings, also for valves and water mains.	John R. Hathaway, Dir. D. P. W.
Ohio	Norwood	January 7, noon	1,000 4-in. water meters and connections.	Wm. L. O'Connell, Com. Pub. Wks.
Missouri	Rolla	January 7	Constructing waterworks system.	L. H. Gebhart, Clk. Bd. Pub. Service
Indiana	Elkhart	January 10	Waterworks system franchise with city option buying.	McRae & Harris, Engineers.
Louisiana	Pineville	January 15, noon	Constructing system of waterworks.	E. L. Arnold, Pres. Bd. Pub. Wks.
Pennsylvania	Meadville	January 15, noon	Triple expansion steam pumps of 2,500,000 gals., and 3,000,000 gals. cap. at pump. s'n.	D. F. Huddle, Mayor.
Arizona	Bisbee	January 15, 2 P.M.	Constructing water system.	Harry Ellsworth, Superintendent.
Ohio	Cleveland Heights	January 15	Laying 754 ft. 6-in. cast-iron water pipe.	Cleve W. Van Dyke, Manager.
Illinois	Kangley	January 22, 4 P.M.	1,840 ft. 4-in. pipe, 1,780 ft. 2-in. pipe connections, valves, hydrants, etc.	W. G. Phare, Fairmount P. O. Clerk.
Louisiana	New Orleans	January 23, 3 P.M.	3,000 tons, 4 to 42-in. cast-iron pipe and 1,100 tons of specials; also for hauling and laying same.	Geo. Clay, Village Clerk.
Nebraska	Mitchell	January 24, 2 P.M.	125,000 lbs. steel bars for reinforcement of concrete, U. S. Reclamation Service.	Geo. G. Earl, Gen. Supt. Water Bd.
Michigan	Muskegon	January 28, noon	6,000,000 gal. and 10,000,000 gal. cap. pumping engine, steam or electric power.	E. A. Hitchcock, Washington, D. C.
Manitoba	Winnipeg	March 1, 2:30 P.M.	Water pipes, specials, manholes, valves, etc.	William Dixon, Supt. Water Works. H. N. Rutnan, City Engineer.
<b>Sewerage</b>				
New York	New York	December 27, noon	System of sewers and appurtenances, Fourth Ward, Borough of Richmond.	George Cromwell, President.
Oregon	Klamath Agency	December 28, 2 P.M.	Constructing sewer system.	Horace G. Wilson, Superintendent.
New York	Syracuse	January 2	Constructing sewer system Elmwood Dist.	H. H. Brewster, Engineer.



## Sewerage—Continued

Illinois	Rosemond	January 2	Three-mile 8- to 16-in. tile drainage ditch	J. W. Dappert, Taylorville, Eng'r.
Ohio	Steubenville	January 4	Building sewer in Washington Street	R. L. Brownlee, Pres. B. P. S.
Manitoba	Winnipeg	January 4	Constructing \$72,000 concrete trunk sewer	H. N. Ruttan, City Engineer.
Missouri	Rolla	January 7	Constructing sewers, cost, \$10,000	McRae & Harris, Engineers.
California	Oakland	January 7, 11 A.M.	Building two brick sewers, cost, \$97,000; three concrete, \$165,000, and iron-stone pipe sewer, \$11,500; six bids.	W. B. Fawcett, Sec'y B. P. W.
New Jersey	Merchantville	January 12, 3 P.M.	Constructing system of sanitary sewers	A. W. MacCallum, Chm. Com.
Arizona	Bisbee	January 15, 2 P.M.	Sewerage system and disposal plant	Cleve W. Van Dyke, Manager.
Iowa	Webster City	January 16	Drainage ditch, Dists. Nos. 23, 30, 24 and 17	O. A. Craigwick, County Auditor.
Kansas	Wichita	January 21, 5 P.M.	Bld'g storm water sewer No. 5; cost \$319,609	R. N. Dorr, City Clerk
Iowa	Cedar Falls	January 22, 7:30 P.M.	Building 3,768 ft. 60-, 48- and 42-in. brick, and 36- and 30-in. vitrified pipe sewer	F. X. Miller, Chm. Sewer Com.
Ohio	St. Mary's	January 30	Complete sanitary sewer system, 14 miles	Riggs & Sherman, Toledo, Eng'rs.
Missouri	Cape Girardeau	February 4, 8 P.M.	Complete sewer system, Dist. No. 1: 12 miles	Granbery Jackson, Nashville, Tenn.
Iowa	Burlington	March 18	8- to 21-in. drain and appurtenances	John F. Winters, City Engineer.

## Public Buildings

Illinois	Princeville	December 26	Erecting 8-room brick school building	Parr & Hulsebus, Peoria, Archs.
Wisconsin	Gillett	December 27, 2 P.M.	Erecting high school building	L. J. Newald, Clk. Bd. Ed.
New Jersey	Montclair Heights	December 27, noon	Erecting normal school	Edward Russ, Chm. Bldg. Com., State House, Trenton.
New York	Brooklyn	December 28, 10 A.M.	Building station-house, prison and stable	Theo. A. Bingham, Police Com.
Minnesota	St. Paul	December 28, 11 A.M.	Erecting 8-room addition Ericson School	Robert A. Smith, Mayor.
Louisiana	Covington	December 29, noon	Erecting school building	Dr. C. Z. Williams, Mayor.
Georgia	Savannah	December 30	Erecting three-story high school	Owens & Cisco, Baltimore, Md., Arch.
Georgia	Cordele	December 31	Two-story Court House and jail; cost, \$80,000	Lockwood Bros., Columbus, Archs.
Wisconsin	Brodhead	December 31	Erecting \$30,000 High School	F. H. Kemp, Beloit, Architect.
Iowa	Council Bluffs	December 31	Erecting school house in Lewis township	H. A. Ellerbeck, Chm. Committee.
Ohio	Toledo	December 31	Building addition to fire station	Brand Whitlock, Mayor.
Virginia	Fort Monroe	December 31	Repairs to barrack buildings Nos. 5 and 10	Capt. R. H. C. Kelton, Q. M.
California	Oakland	January 2, 11 A.M.	Two-story fire engine house; cost, \$15,000	W. B. Fawcett, Sec'y B. P. W.
New York	Syracuse	January 3, 6 P.M.	Erecting high school building	Archimedes Russell, Architect.
Rhode Island	Newport	January 7, 3 P.M.	Building extension to U. S. Post Office	J. K. Taylor, Washington, D. C.
New Jersey	Union	January 7, 8 P.M.	Erecting two-story brick fire house	Emil Bautz, Jr., Town Clerk.
Georgia	Atlanta	January 10, 3 P.M.	Foundations for Post Office and Court House	J. K. Taylor, Washington, D. C.
Wyoming	Cheyenne	January 14, 11:30 A.M.	Constructing buildings, etc. Ft. D. A. Russell	Capt. V. K. Hart, Q. M.
Texas	Dallas	January 15, 3 P.M.	Extension to Post Office and Court House	J. K. Taylor, Washington, D. C.
Arizona	Talkai	January 16, 2 P.M.	Building stone mess hall, Rice Station School	A. S. Perkins, Superintendent.
Iowa	Leon	February 1	Erecting \$75,000 Court House	J. S. Thorp, Clk. Dist. Court.
Virginia	Richmond	February 1	Fire-proof high school building, 180 x 220 ft.; estimated cost, \$500,000	Charles W. Bryant, Architect.
Louisiana	New Orleans	February 4, 2 P.M.	Erecting court house 250x290 ft. 4 stories, pile foundations, stone and terra cotta exterior, electric elevator, wiring, heating, etc., steel or reinforced concrete frame	Bernard McCloskey, Pres. Com.
North Dakota	University	February 5	Library building State University, cost, \$60,000	J. W. Wilkerson, Sec'y Bd. Trustees.
Ohio	Marion	April 1	Four-story addition to school; cost, \$10,000	Geo. B. Christian, Jr. Clerk, Bd. Ed.

## Bridges

Kansas	La Crosse	December 27, noon	Iron bridge 50 ft. long, 16 ft. roadway	B. F. Krause, County Clerk.
West Virginia	Charleston	December 27, 8 P.M.	Constructing highway bridge	J. F. Hudson, Chm. Bridge Com.
Ohio	Toledo	December 27	Erecting two bridges	Lucas County Commissioners.
Indiana	Princeton	December 27	Erecting new iron bridge and repairing old one	J. W. Phillips, Co. Com'r.
Missouri	Kansas City	December 28, 11 A.M.	Building 30-ft. I-beam steel bridge; two stone arch culverts and new abutments	Clerk, Jackson County.
Arizona	Tombstone	December 28	Building steel bridge with concrete piers	J. J. Bowen, Chm. Bd. Super visors.
Indiana	Greenfield	December 29, 10 A.M.	Building 112-ft. span bridge; also 30-ft. steel and concrete bridge	W. J. Garriott, County Auditor.
Indiana	Indianapolis	December 29, 10 A.M.	Erecting bridge over White River	C. J. Clark, County Auditor.
Indiana	Rockville	December 29, 1 P.M.	Building approach to bridge across Wabash	Parke County Commissioners.
Massachusetts	Cambridge	January 2, noon	Steel highway draw-bridge across canal	L. M. Hastings, City Eng'r.
Louisiana	La Fayette	January 3	Iron draw-bridge, with 16-ft. roadway	Felix H. Monton.
Ohio	Cincinnati	January 4, noon	Erecting new bridge, Green Township	W. H. Blair, Pres. Co. Com'rs.
Michigan	Manistee	January 4, 2 P.M.	Repairing 100-ft. span bridge and building 50-ft. span bridge of reinforced concrete	County Surveyor.
Nebraska	York	January 7	Building wooden or steel bridges in county	County Clerk.
Mississippi	Hattiesburg	January 8	Steel bridge over Big Black Creek	T. E. Batson, Clk. Bd. Sup.
Missouri	Albany	January 8	Building on tube foundation: 160-ft. span, 48-ft. approach; 90-ft. span, 64-ft. approach; 70 ft. span, 36-ft. approach; on I-beam leg foundation: three 40-ft. spans, 64-ft. approach; six 30 I-beams, 64-ft. approach; five 24-ft. I-beams, twelve 20-ft. I-beam, and repair 300-ft. span	W. A. Henton, County Surveyor.
Washington	Walla Walla	January 9, 1 P.M.	Steel and wooden bridge over Touchet River	County Commissioners.
Kansas	Wichita	January 12	Pile bridges: 156x230 and 60 ft. long; also 60-ft. steel bridge, all 16 ft. wide	Sedgwick County Commissioners.
Washington	Colfax	January 15	Build bridges at Rosalia, Colton and Sutton	Whitman County Commissioners.
Tennessee	Memphis	January 16, noon	Erecting steel girder bridge at Madison Ave.	James H. Malone, Mayor.

## Miscellaneous

New York	New York	December 26, 10 A.M.	Furnishing and placing electrical conductors under ground	T. A. Bingham, Police Com'r.
District of Columbia	Washington	December 26	Electric plant for equipping Capitol and other buildings	Elliott Woods, Superintendent.
New York	New York	December 27, 10 A.M.	Letter files and cabinets	T. A. Bingham, Police Com'r.
New York	New York	December 27, 10:30 A.M.	Furnishing 3,000 ft. 3-in. rubber fire hose	F. J. Lantry, Fire Commissioner.
New York	New York	December 27, noon	Building crematory or refuse destructor	George Cromwell, Borough Pres.
Ohio	Columbus	December 28	Furnishing 1,300 450-watt electric light arc lamps for one year	A. R. Callow, Sec'y Bd. Pub. Ser.
California	San Francisco	December 29	Sale of franchise for street car line	Board of Supervisors.
New York	New York	December 31, 2 P.M.	Lighting streets, parks, etc., with gas and electricity, new lamps, etc., for one year	John H. O'Brien, Commissioner.
Mississippi	Greenville	December 31	Building 61-mile line for Greenville, Leland and Rolling Forks. Co. Railway	W. R. Barkesdale, Memphis, Tenn., President.
Kentucky	Carrollton	January 2	Dynamo, engine and new boilers for electric-light plant; estimate, \$25,000	R. L. Bartlett, City Engineer.
Ohio	Cleveland	January 3	Building and operating street railways	Peter Witt, City Clerk.
Kansas	Clay Center	January 4	Boilers, engines and electrical machinery	Geo. W. Hanna, Mayor.
Ohio	Lakewood	January 4, noon	Collecting garbage and dead animals	B. M. Cook, Clk. Bd. Health.
New York	West Point	January 5, 3 P.M.	Constructing electrical subway system	Quartermaster U. S. M. A.
Indiana	Mt. Vernon	January 9, 3 P.M.	Erecting Soldiers' and Sailors' monument	S. G. Howard, County Auditor.
Tennessee	Memphis	January 10, noon	Furnishing 3,000 metal street signs	James H. Malone, Mayor.
Virginia	Salem	January 10, 7:30 P.M.	Sale of street railway franchise	Thomas I. Preston, Mayor.
California	Pasadena	January 10	Equipment for municipal electric-light plant	Herman Dyer, City Clerk.
Pennsylvania	Nanticoke	January 15	Building power house, head and tailrace, etc.	Am. Pipe Mfg. Co., 112 N. Broad Street, Philadelphia.
Virginia	Richmond	February 1, 5 P.M.	Erecting bldgs., machinery, apparatus, pipes, etc., to rehabilitate and enlarge gas works; cost, \$325,000 to \$350,000	W. P. Knowles, Superintendent.
Mississippi	Natchez	March 7, 4 P.M.	Lighting for 10 years, from March 7 1908	S. B. Stewart Chm. Light Com.

## STREET IMPROVEMENTS

**Gadsden, Ala.**—Bonds, \$20,000, for street improvements, have been sold through Steiner Brothers of Birmingham; Broad street may be paved.—Charles P. Smith, Mayor.

**Little Rock, Ark.**—Arrangements are being made to pave certain portions of Izard street.

**Augusta, Ga.**—Council favors the constructing of cement pavement in certain streets.

**Macon, Ga.**—The question of issuing bonds for improvements of streets is under consideration.

**Champaign, Ill.**—Estimates are being prepared for paving to the amount of \$200,000.—G. C. Fando, City Engineer.

**Fort Wayne, Ind.**—Plans and specifications are being prepared for paving certain portions of Washington street and other streets and avenues.—Frank D. Randall, City Engineer.

**Frankfort, Ind.**—The property owners have petitioned Council for the construction and paving of several streets, including South Temple and Second South streets.

**Hammond, Ind.**—Council is preparing to lay cement walks in many streets.—John L. Rohde, President, Board of Public Works.

**Indianapolis, Ind.**—Resolutions have passed Council for brick roadways and curbing for about ten streets and alleys.

**Valparaiso, Ind.**—Estimates are being prepared for improving certain streets by constructing cement curbing and gutter.—Robert Ewing, City Clerk.

**Centerville, Ia.**—Council has decided to improve certain streets by paving; estimated cost, \$7,000.

**Des Moines, Ia.**—Plans are being prepared for improving down town streets.—George Dobson, City Engineer.

**Wichita, Kan.**—Council is considering paving of Lawrence avenue with brick.

**Wichita, Kan.**—The Atchison, Topeka and Santa Fe Railway is preparing to pave the ground surrounding the freight house.

**Louisville, Ky.**—The Barber Asphalt Company has been awarded the contract for the improvement of Culbertson avenue, in New Albany, at \$4.29 per lineal foot.—Samuel T. Mann, Engineer.

**New Orleans, La.**—The Street and Landings Committee is considering paving Prytania street with bitulithic and laying sub-surface drains; and Joseph street with small granite block and subsurface drains.

**Rayne, La.**—The J. N. Bigler Construction Company, Bessemer, Ala., has been awarded contract for 40,000 square feet of sidewalks, surface material  $\frac{3}{4}$ -inch mortar coat,  $\frac{3}{4}$  inch concrete, 2-inch sand foundation, at 19½ cents per square foot; wearing coat 5 parts screened sand to 3 parts cement; concrete 1:3:5 parts clam shell; filling and removing trees included in contract; the company also has contract for setting 7,000 lineal feet of brick curbing at 50 cents per lineal foot; curb 8 inches thick and averaging 24 inches in height; outside and top faced with  $\frac{1}{2}$ -inch cement mortar.—R. B. Boettcher, Engineer.

**Flint, Mich.**—The city will issue \$6,100 5 per cent. paying bonds.

**Hastings, Mich.**—The election resulted in favor of \$35,000 4 per cent. paying bonds.

**Manistee, Mich.**—An issue of \$16,000 paying bonds has been authorized.

**Detroit, Mich.**—The estimated cost of widening Washington boulevard and opening Howard street will be \$250,000; estimates have been prepared for repaving 11 streets and parks and resurfacing 21 thoroughfares on the west side; various materials are to be used.—J. J. Haarer, Commissioner of Public Works.

**Crookston, Minn.**—Estimates are being prepared for improving Houston street by paving with asphalt; estimated cost, \$20,000.—A. N. Child, City Clerk.

**St. Paul, Minn.**—The Committee on Streets has decided to pave certain streets in the Crocus Hill district.

**Natchez, Miss.**—The City Engineer has been directed to prepare plans for paving and improving several streets.

**Pascagula, Miss.**—The city is preparing to improve streets at a cost of \$35,000.

**St. Louis, Mo.**—The Board of Public Works proposes to improve the King's Highway by grading, paving, etc.

**St. Joseph, Mo.**—The Board of Public Works has ordered plans and specifications prepared for artificial stone sidewalks, to be constructed in several streets.

**Hastings, Neb.**—Council has under consideration the issue of \$35,000 bonds for paving purposes.

**Santa Fe, N. M.**—Council has directed the City Engineer to advertise for bids for improving certain streets with cement walks.—A. P. Hill, City Clerk.

**Binghamton, N. Y.**—The Board of Supervisors have recommended a large number of highway improvements in Windsor and Main townships; it is proposed to construct a macadam road about a mile and a half long.—Address Geo. W. Edwards, of Lisle.

**Ashtabula, O.**—Council has decided to pave the Spring street viaduct with creosote block; the pavement is to be laid on a foundation of three-inch creosoted Georgia pine and the paving on top is to be with block.

**Bellefontaine, O.**—Resolutions to pave North Detroit street have passed Council; the specifications include stone and cement curbing; bids will be opened about the first of March.—J. D. McLaughlin, Chairman, Paving Committee.

**Bellvue, O.**—The improvement of Castalia street by paving is to be undertaken early in the spring.

**Bucyrus, O.**—The improvement of Galion street by paving with brick or asphalt will be one of the first improvements for the early spring.

**Cincinnati, O.**—August J. Henkel has received a contract for paving Donnersberger street with brick, covering 1,100 square yards, at his bid of \$2,600.

**Cleveland, O.**—Resolutions to pave Murray Hill avenue, East 19th place, Stern's road, Lexington avenue, Osage avenue, Anderson avenue and Deacon avenue have passed Council.—Peter Witt, City Clerk.

**Conneaut, O.**—Resolutions to pave, drain and curb Broad and 15th streets have passed Council; brick blocks will be used.—H. T. Culp, City Clerk.

**Dayton, O.**—Ordinances and resolutions for paving some 20 or 40 streets and alleys have passed Council.—C. P. Floyd, City Clerk.

**East Liverpool, O.**—Ordinances for paving Ida and Monroe streets have passed, and it is proposed also to sewer Ida street from Enoch to Vine street; Monroe street is to be paved from 4th to 5th.—Willus Davidson, City Auditor.

**Lancaster, O.**—Preliminary legislation for paving Chestnut street, the estimated cost of which is \$15,000, has passed Council.—B. E. Shell, City Clerk.

**Mt. Vernon, O.**—The resolution to pave Spice alley has passed its third reading; the estimate on the cost of paving Gambler street is \$35,500, and of paving E. Burgess street, \$13,426.

**Newark, O.**—The Board of Public Service has awarded to Brennen and Nutter the contract for paving West Main street, at \$22,090; this does not include curbing or concrete foundations; it does, however, include cement work and the construction of sewer drops and manholes; Cramer and Richardson have the contract for curbing, at \$4,800, and S. J. White for concrete foundations, at \$2,400; Broken brick will be used in paving, and will require 250 carloads.

**Painesville, O.**—Plans are ready for paving Elm street, to cost \$1,800; bids will be opened in the spring.

**Delaware, O.**—The contract for paving Mabel street has been awarded to J. P. Hutchinson, at \$1,340; Clarence Hazelton will pave Noble street for \$946.

**Youngstown, O.**—An ordinance has been passed authorizing an issue of \$508,000 South Watt street improvement bonds.—Pyatt W. Hubbs, City Clerk.

**Steubenville, O.**—Council has passed a preliminary legislation for paving Washington street with Hillside block.—W. M. Trafter, Clerk of Council.

**Toledo, O.**—One of the important paving jobs to be undertaken in the spring is the paving of the cemetery route, including Sherman street, from LaGrange to Stickney street; the paving of Summit avenue from Ohio to Michigan avenue is also to be undertaken in the spring.

**El Reno, Okla.**—Council has decided to advertise for bids for paving certain streets with brick or asphalt.

**Franklin, Pa.**—The immediate paving of Elk and West Park streets has been requested by W. Rowland and a large number of other petitioners; asphalt block will probably be used, although the material is still a matter undecided.

**Deadwood, S. D.**—Council has under consideration paving certain streets with creosoted blocks.

**Dallas, Tex.**—Mayor Smith has signed a contract with Carleton H. Wells, representing the Texas Bitulithic Paving Company, for repaving Akard street, between Commerce and Pacific avenues; the Municipal Commission has approved contract with the company for laying 19,615 square yards of paving on Forest avenue, for \$50,220.25, or \$2.35 per square yard.

**Wallisville, Tex.**—Chambers county will hold an election to vote on \$50,000 road and bridge bonds.

**Beaumont, Tex.**—The Attorney General has approved issue of \$130,000 5 per cent. bonds for street and school purposes.

**Tacoma, Wash.**—B. N. Kibler was awarded contract for grading and laying sidewalks on Puget Sound avenue, for \$9,730; other bidders were F. A. Keasal and P. E. McHugh; no bids were received for grading and laying sidewalks on North Pine, Alder and other streets in Districts No. 315 and No. 236.—Owen Woods, Commissioner of Public Works.

## SEWERAGE

**Eatonton, Ga.**—The Bank of Eatonton has purchased \$15,000 bonds issued for constructing sewerage system; Engineer E. C. Davis, of Griffin, has the contract.

**Cairo, Ill.**—Council has passed ordinances for building sewers and filling in Douglas, Fourteenth, Fifteenth, Cedar, Locust and Pine streets, and Jefferson avenue; estimate, \$32,109.06; also Sixteenth street from Washington avenue to Pine street, and Seventeenth street from Walnut to Pine street, estimate \$19,794.88; sewers, manholes, inlets, etc., estimate \$5,455.71; filling in Eighteenth, Nineteenth, Twentieth, Cross and Cedar streets, estimated \$19,794.88.—Address Mayor Parsons.

**Dundee, Ill.**—The Trustees of West Dundee have accepted plans for complete sewer system, prepared by Anderson and Scheffow, of Elgin.

**Rockford, Ill.**—Petition is being made for sewer system on East State street.

**Rock Island, Ill.**—The People's Construction Company, Davenport, Iowa, has been awarded contract for laying 3,650 feet of 36-inch tile sewer in 14-foot trench, excavating 8 feet of gravel and 6 feet of rock, and handling ground water, at \$5.75 per lineal foot; 1,400 feet 42x42-inch reinforced concrete, 1-inch, 2-inch, 5-inch thickness of shell 1 foot in 9-foot trench, including 3 feet of rock excavation, at \$5.40 per foot; 465 feet 30-inch tile sewer, 6-foot trench, at \$3.50 per foot; 1,000 feet 24-inch tile sewer, 8-foot trench, \$2.05 per foot; 2,005 feet 18-inch tile sewer, 8-foot trench, \$1.70 per foot; 1,275 feet 15-inch tile sewer, 8-foot trench, \$1.05 per foot; 2,260 feet 12-inch tile sewer, 8-foot trench, 95 cents; 3,195 feet 10-inch tile sewer, 8-foot trench, 75 cents; 3,225 feet 8-inch tile sewer, 8-foot trench, 60 cents; manholes, 10-foot depth, \$50 each; rock excavation, \$2.90 per cubic yard; surface water inlet, \$4,500; wages of common labor, \$2 per day, 9 hours; total amount of contract, \$47,232.50; King-Lambert Co., Des Moines, Ia., bid \$48,100.—Wallace Treichler, City Engineer.

**Evansville, Ind.**—Engineer Temme has completed plans for the construction of a \$300,000 sewer.

**Winchester, Ky.**—Council is preparing to build a sanitary sewer system for the construction of which bonds amounting to \$40,000 will be issued.

**Boston, Mass.**—T. H. Gill Company was low bidder for constructing part of Sec. 85, extension of High Level Sewer, South Metropolitan System, at Brighton, at \$49,280, as follows: 1,200 lineal feet earth or rock excavation, in tunnel 5-foot, 9-inch by 6-foot sewers, at \$28.70 per foot; 60 cubic yards brick masonry, Portland in shafts, at \$14; 1,400 cubic yards concrete masonry, Portland in tunnel, at \$10; other bidders were Coleman Bros., \$52,600; George M. Byrne Co., \$54,760; Falvey & Kelly, \$55,540; Metropolitan Contracting Co., \$56,200; Rowe & Perini, South Framingham, \$57,080.

**Detroit, Mich.**—Bids will be advertised for the sewer and dock at the foot of Joseph avenue; the lowest bidder was John Genzill and Company, at \$4,600.—Secretary McGee, Department of Public Works.

**St. Louis, Mo.**—Council has appropriated \$1,500,000 for the construction of public sewers.

**Minden, Neb.**—Burns and McDonnell, Kansas City, Mo., have been engaged to make plans and specifications for a complete sewerage system.

**Albany, N. Y.**—Council has under consideration the establishing of a sewage disposal plant in connection with the intersecting sewer.

**Grand Forks, N. D.**—Council has granted permission for the construction of a trunk sewer for the State University and Wesley College, to connect with the city's trunk sewer; the City Engineer is preparing plans and estimates.—Address Wm. Budge, Board of Trustees, State University, or Dr. Robertson, Board of Trustees, Wesley College.

**Akron, O.**—Council is considering plans for extending the city sewage outlet to a point 1,000 feet further down the Little Cuyahoga, and the connection of the Howard street sanitary sewer, which now empties into the Little Cuyahoga, under the North Howard street bridge, with the main outlet; the changes will cost several thousand dollars.—City Engineer Payne.

**Carthage, O.**—Estimates are being prepared for construction of 8 and 10-inch sewers in several streets.—R. K. Shannon, City Clerk.

**East Liverpool, O.**—C. B. Ogden, City Health Officer, has urged Council to authorize the construction of sewers throughout the entire Second District of this town; City Solicitor Geo. E. Davidson has submitted resolution declaring it necessary to sewer Pine and Greasley streets; it is likely that District No. 2 will be sewered.

**Niles, O.**—The Sewer Commission has made its report to the Council on the cost of the Vienna avenue district sewer, estimating



a rate of \$1.36 per foot frontage; the property will be inspected, and the improvement probably authorized.

**Youngstown, O.**—Council has authorized the drawing of plans for a sewage disposal plant at once; resolutions and ordinances to sewer Seneca street have passed.—John Mulholland, City Engineer.

**Jenkintown, Pa.**—The Council is considering the question of issuing \$60,000 sewer bonds.

**Sharon, Pa.**—Wm. McIntyre Sons have the contract for the large sewer for the South Dock Company, at \$2,000.

**Knoxville, Tenn.**—An ordinance has been passed for the construction of sewers in several streets, according to plans and specifications.

**Virginia Beach, Va.**—The proposition to issue \$50,000 water and sewerage bonds carried.

**Charleston, W. Va.**—The proposition to issue \$120,000 in bonds for sewers has been carried; \$100,000 funding bonds and \$25,000 bridge bonds also carried.

## WATER SUPPLY

**Vallejo, Cal.**—Council has appropriated \$10,000 for the construction of water main.

**Florence, Col.**—The Colorado Iron Company will construct three reservoirs of large capacity.

**Wrightsville, Ga.**—Bids will be received January 2, for the purchase of \$25,000 5 per cent. waterworks bonds.—Mayor W. J. Brinson, Jr.

**Cottonwood, Ida.**—A private company has petitioned Council for franchise to operate water plant.

**Mattoon, Ill.**—The Chamber of Commerce started subscription to organize a company with a capital of \$100,000 to furnish adequate water supply for the city.

**Peoria Heights, Ill.**—The village offers \$15,000 worth of water main to any firm which will promise to erect water plant within the village limits.

**Springfield, Ill.**—Council is considering the matter of establishing a filtration plant.

**Huntington, Ind.**—Bids will be received January 1 for the purchase of \$25,000 4 per cent., 15-year waterworks bonds.

**Hubbard, Ia.**—The question of issuing \$300,000 bonds for the improving of the water plant is under consideration.

**Ottumwa, Ia.**—Council is again considering matter of purchasing water plant, and establishing municipal water system.

**Frontenac, Kan.**—The citizens have voted \$18,000 bonds for the construction of water plant.

**Elm Creek, Neb.**—Bids will be received, February 1, for \$10,000 5 per cent., 5 to 20-year waterworks bonds.—J. S. Fields, Village Clerk.

**Bryan, O.**—There will be a special election December 27, to vote on \$40,000 bond issue, proceeds to be applied to the improvement of the municipal water and light plant; new mains to the extent of \$10,000 will also be laid.

**Cincinnati, O.**—The Board of Waterworks Commissioners have authorized the Mayor to employ a competent engineer to make surveys for an emergency reservoir to cross the Licking river.

**Delaware, O.**—This town is considering the project of building a municipal waterworks plant.

**Massillon, O.**—The citizens have voted issue of bonds for improving waterworks.

**Springfield, O.**—Preparations are being made for a bond issue for waterworks extension.—W. H. Sieverling, City Engineer.

**Steubenville, O.**—A water and light company has been organized at Follansbee, and the company will at once take up the question of building a modern waterworks plant; the company will be capitalized at \$75,000.

**Warren, O.**—The Board of Public Service will employ an engineer to appraise the cost of the Warren Water and Light Company, which the city contemplates purchasing.

**Worcester, O.**—The question of issuing bonds for improving the water system is to be submitted to a vote of the people.

**Zanesville, O.**—The Waterworks Department is in need of a new engine and new pumps, and the matter is to be brought to the attention of Council at once.

**Sayre, Okla.**—Burns and McDonnell, Kansas City, Mo., are preparing plans and specifications for a complete waterworks plant.

**Bristol, Tenn.**—The city authorities will petition Legislature for authority to issue \$35,000 bonds for water system.

**Watertown, Wis.**—Bids will be received December 31 for the purchase of \$10,000 4½ per cent. waterworks bonds.—Frank S. Webster, City Clerk.

**Shoshone, Wyo.**—Franchise has been granted to the Shoshone Water Company to maintain a water system; water will be brought from the Big Horn river.

**Hull, Que.**—Council has decided to issue \$18,000 bonds for extending water system; a new inlet pipe will be constructed.

## LIGHTING AND ELECTRICITY

**Bisbee, Ariz.**—The International Gas Pipe Company has received franchise to construct an electric-light and power system.

**Tucson, Ariz.**—The citizens have voted for municipal ownership of the lighting plant.—L. H. Manning, Mayor.

**Groverville, Cal.**—The Great Western Power Company proposes to issue \$25,000 in bonds for furnishing lighting and heating to all the towns in Superior and Central California.

**Pasadena, Cal.**—Council has passed ordinance to sell the municipal light bonds.

**Wilmington, Del.**—The Southern Electric Company has been awarded contract for wiring the second and third floors of the City Hall, for electric lights, for \$215.75.—H. C. McQueen, Chairman, Board of Audit and Finance.

**Americus, Ga.**—Council is considering proposition of Joseph Roman, of Atlanta, to light the city and pump water, and ultimately for a street railroad and day electric current for commercial purposes.

**Crawfordsville, Ga.**—The citizens will vote on the question of issuing bonds for building an acetylene gas plant.

**Sandersville, Ga.**—The city has voted \$30,000 bonds for establishing an electric-light system.

**Bluffton, Ind.**—Council has purchased three new 150-h.p. boilers for the electric-light and waterworks plant for \$4,350.

**Lafayette, Ind.**—The Ft. Wayne & Wabash Valley Traction Company will expend \$50,000 in the enlargement of its power plant.

**Marion, Ind.**—The Marion electric-light plant, owned by the American Electric Company, with offices at Philadelphia, proposes to extend its plant.

**Plymouth, Ind.**—Council has granted a gas franchise for 25 years to Clarence Geist, of Philadelphia, plant costing \$30,000, to be completed in a year, and the price of gas to be \$1.25.

**Atlantic, Ia.**—The Rock Island Railway contemplates building a pumping plant in the near future.

**Creston, Ia.**—The present electric-light system is inadequate; improvements are to be made.

**Essex, Ia.**—Oscar Nelson has received franchise to build an electric plant.

**Boyer City, Mich.**—The village has given a franchise to O. S. Hayden and W. H. Selkirk for a gas plant; they will commence construction of same as soon as possible.

**Pontiac, Mich.**—Council has directed the City Attorney to take steps to annul the contract with the Pontiac Standard Lighting Company for street lighting on the grounds that the provisions of the contract have not been lived up to.

**Louisiana, Mo.**—The Louisiana Light and Power Company has petitioned for franchise to install an electric-light, street railway and heating system.—Arthur Ladley, promoter.

**Frewsburg, N. Y.**—A stock company is being organized for the purpose of establishing an electric-light plant to furnish electric light.—Wm. T. Rahn, President.

**Middleville, N. Y.**—The Middleville Electric-Light Company has been granted permission to increase its capital stock from \$4,000 to \$12,000, for the purpose of installing a new power house.—David E. Ford, President.

**Sharon, N. Y.**—Council is taking steps to build a municipal lighting plant, at a cost of \$50,000.

**Fayetteville, N. C.**—The Cape Fear Power Company will soon commence work upon the alteration of its large power plant at Buckhorn Falls; estimated cost, \$200,000.

**Elyria, O.**—The Deene Electric Company has been reorganized, with a capital of \$1,000,000; the capacity of the plant will be doubled, and new buildings will be erected.

**Niles, O.**—The Board has rescinded the contract for the new equipment for one engine, one generator, and one street light system with the Machinery Sales Co., of Cincinnati, and has decided to readvertise for bids.

**Warren, O.**—The Board of County Examiners has recommended the construction of a lighting plant for the county.

**Hennessy, Okla.**—The Hennessy Electric Light, Ice and Power Company has been organized, with a capital stock of \$15,000; a power plant will be erected at once.—Fred Ehler, President.

**Scranton, Pa.**—The Scranton Railway Company is preparing to expend \$500,000 for the erection of a new power house and other improvements; \$65,000 will be expended for the purchase of cars.

**Sharon, Pa.**—Council will recommend a \$40,000 bond issue for erecting a municipal electric-lighting plant.

**Seneca, S. C.**—The citizens have voted \$30,000 in bonds for establishing electric-light and water plant.—L. A. Edwards, Commissioner.

**Bronte, Tex.**—A company has been organized and is now building an electric plant.—Frank Hickman, President.

## FIRE EQUIPMENT AND SUPPLIES

**Hot Springs, Ark.**—Council is arranging to build a fire station at Grand avenue.

**Vallejo, Cal.**—The engineer has completed plans for fire house.

**New Britain, Conn.**—Council recommends that a fire engine be purchased immediately.

**Wilmington, Del.**—The Board of Audit and Finance is considering proposition to consolidate Hook and Ladder Company on Dock street with Chemical Company, in new \$8,000 building which it proposes to build.—H. C. McQueen, Chairman.

**Pella, Ia.**—Council proposes to establish a fire alarm system.

**Chicago, Ill.**—Chas. F. Hermann has completed plans for the erection of two engine houses, one at Marshfield avenue and 45th street, and the other at Halsted street and 55th.

**Rockford, Ill.**—The Fire Department will be improved; the West End Fire Station will be equipped with apparatus, and a modern station will be erected in the Southeast end, and a new steamer purchased.

**South Hadley, Mass.**—The Town Board proposes to secure fire apparatus.

**Highland Park, Mich.**—Council has petitioned the Detroit Council to extend fire alarm boxes to the village.

**Pingree, N. D.**—The citizens have organized a fire company; it is proposed to purchase fire apparatus.

**Cleveland, O.**—Fire Chief Wallace recommends the erection and equipping of four new engine houses.

**Springfield, O.**—The Fire Chief recommends the purchase of 2,000 feet of hose to replace hose damaged by fire.

**Easton, Pa.**—Wise and Bailey, of Philadelphia, have been awarded contract through H. M. Gibson, to furnish 1,250 feet of "Bay State" fire hose, manufactured by the Boston Woven Hose and Rubber Company, Boston, Mass., f. o. b. Easton, at 80 cents per foot; warranted 72 months, 500 pounds pressure; other bidders were: Eureka Fire Hose Company, of New York, Paragon brand, 90 cents a foot, five years' guarantee; Macan Jr. Co., of Easton, Duplex A-1 brands, 75 cents a foot, guaranteed to withstand 400 pounds pressure for 48 months; Fabric Fire Hose Company, Deering brand, \$1 a foot, guaranteed to withstand 400 pounds pressure for five years, Keystone brand, 90 cents a foot, same guarantee.

**Reading, Pa.**—The Pioneer Hose Company has decided to erect a fire hall.

**Franklin, Tenn.**—A fire company has been organized at this place.—F. P. P. Henderson, Chief.

**Jackson, Tenn.**—Council has authorized issue of \$15,000 bonds for improving fire protection.

**Dalhart, Tex.**—Bonds have been issued for building a fire house.

**Walla Walla, Wash.**—Council has abandoned the proposition to build a combined fire hall and fire station; a separate fire station will be erected.

**Rhineland, Wis.**—Council has under consideration the improving of the fire protection and purchase of additional apparatus.

## PUBLIC BUILDINGS

**Hot Springs, Ark.**—J. W. Golucke & Co., Architects, Temple Court, Atlanta, Ga., have plans for a \$100,000 school.

**Milledgeville, Ga.**—An election will be held to decide the question of issuing \$50,000 bonds for erecting a City Hall and improving streets.

**Lafayette, La.**—The School Board is preparing to issue \$18,000 school bonds.

**Hattiesburg, Miss.**—Council is considering the erection of a new City Hall, which will probably be on the same site as the old hall; cost, between \$60,000 and \$80,000.

**Macon, Miss.**—Bids will be received January 2, for the purchase of \$20,000 4½ per cent., 20-year Noxubee County jail bonds.—Address Z. T. Derrob.

**Livingston, Mont.**—Bids will be received January 15 by the County Board for the purchase of \$25,000 4 per cent. jail bonds.

**Geneva, N. Y.**—The issue of bonds for the erection of a City Hall is being considered.

**Hornell, N. Y.**—Council has authorized an issue of \$30,000 bonds for the erection of a Court House.

**Middletown, N. Y.**—R. T. Ford Company, of Rochester, was low bidder for furnishing two new boilers at the State Homeopathic Hospital, at \$6,667, and will probably be awarded contract; other bidders were Edwin Burhorn, of New York, \$7,488; Edward Joy, of Syracuse, \$7,900; Frank Dobson, New York, \$8,240; P. Delany & Co., Newburgh, \$8,990.—T. E. McGarr, Secretary, State Commission in Lunacy.

**Chattanooga, Tenn.**—The county is preparing to issue bonds for the erection of schools in St. Elmo, Richdale and East Chattanooga.

**Jackson, Tenn.**—Council has authorized issue of \$80,000 bonds for erecting an additional school house and \$15,000 bonds for improving the city Fire Department.

## STREET RAILWAYS

**Indianapolis, Ind.**—The County Commissioners and the City Park Board have reached an agreement as to the plans for the proposed new Thirtieth street bridge over the White river, in Riverside park, and the Commissioners will proceed at once to advertise for bids; it will be concrete arch, with three spans, and will cost \$180,000.

**Keokuk, Ia.**—The Lee County Supervisors have granted franchise to L. Behr & Company, St. Louis, Mo., to build electric line through Lee county; the line will extend from Keokuk to Burlington.

**Sioux City, Ia.**—The Burlington Railway Company will build a draw bridge over the Missouri river at Sioux City, just below the Omaha bridge, instead of a high bridge.

**Westville, N. J.**—Improvements costing nearly \$500,000 are to be made to the electric line of the West Jersey and Seashore Railroad before the next summer schedule goes into effect; the directors have authorized the purchase of thirty-two cars, and it is proposed to greatly increase the capacity of the Westville power station.

**Schenectady, N. Y.**—The Schenectady, Marketsville, Hancock, and East Branch Railway Company has received a permit to build the Schoharie Valley line.

**Chillicothe, O.**—The Hillsboro, Bainbridge and Chillicothe Traction Company is being formed, with a capital stock of \$50,000; surveys are being made, and franchises are being secured.—George H. Smith, of Chillicothe, promoter.

**Cleveland, O.**—An ordinance is before Council to extend the electric lines of the Forest City Railway Company on several streets.—Fred C. Arber, Manager.

**Findlay, O.**—A company is being organized to build an electric road between Findlay, Tiffin and Norwalk; the road will be known as the Cleveland and Indianapolis Interurban Railway.—P. W. Ewing, Secretary.

**Mt. Gilead, O.**—At a meeting of the stockholders of the Delaware, Mt. Gilead and Gallon Electric Line it was decided to commence work on the road in the near future.

**Oklahoma City, Okla.**—The Oklahoma Railway Company has been incorporated, with a capital stock of \$5,000,000, by Frank Wells, G. G. Barnes, Carlos Holmes, of Oklahoma City, to build an interurban electric line covering a total of 170 miles, and connecting the principal cities in two territories.

**Shawnee, Okla.**—The local street railway will be extended a distance of three miles.

**Scranton, Pa.**—The Scranton Railway Company proposes to expend \$50,000 in improvements; \$75,000 will be spent in building the proposed Muggler street viaduct.

## BRIDGES

**San Diego, Cal.**—Bids will be received for the erection of two bridges, one across Sweetwater river at the entrance of the steel cañon, and the other over the Cuyagaman and Eastern Railway at Alta station; the former to be 100 feet Howe truss bridge, with 260 feet of lineal approach; the latter bridge will be of reinforced concrete.

**San Raphael, Cal.**—The City Engineer was directed to prepare plans and specifications for the construction of a concrete bridge on H street, between Fourth and Fifth streets; estimated cost, \$2,000.

**Darien, Ga.**—The Georgia Coast and Piedmont Railway proposes to build a bridge across the Altamaha river, at a cost of \$100,000.—L. E. Emerson, Darien, Superintendent.

**Sioux City, Ia.**—The Burlington system has decided to build a bridge over the Missouri river in Sioux City; preliminary work will begin early next year.

**Hutchinson, Ky.**—Plans and estimates are being made for a new bridge over Cow creek, at Poplar street; Council is considering matter.

**Covington, Ky.**—The South Covington and Cincinnati Railway Company is interested in the construction of the proposed bridge across the Licking river.

**Lafayette, La.**—The Police Jury will advertise for bids for the construction of bridge across the Vermillion bayou.

**Dayton, O.**—The Montgomery County Board has been petitioned to build a bridge across Big Twin Creek near Farmersville.

**Napoleon, O.**—An appropriation of \$70,000 will be made to build bridge over Maumee river near Napoleon.

**Springfield, O.**—An appropriation of \$25,000 will be asked by the Board of Public Service for a bridge across Buck creek, connecting Sherman avenue and Nelson street; other bridges will be repaired.—Director William Sharon.

**Toledo, O.**—Council will probably direct the Directors of Public Service to build a new bridge over the canal at South avenue; cost, \$30,000.

**Portland, Ore.**—The East Side has formally started the campaign for a new steel bridge across the Willamette, to replace the Madison street bridge, which is nearing the end of its usefulness.

**Norfolk, Va.**—Plans have been prepared for two proposed viaducts crossing Newton creek.—W. F. Brooks, City Engineer.

**Winnipeg, Man.**—The Provincial Government has granted the request of Winnipeg and St. Boniface for a grant of \$125,000 for the building and acquiring of a bridge communication between the two cities.

## MISCELLANEOUS

**Mobile, Ala.**—The Commercial Printing Company has been awarded contract to print the city code at 93 cents per page.—Mayor Lyons.

**Cairo, Ill.**—The Comptroller has been directed to advertise for bids for removal of garbage and for city printing during the new year.—Mayor Faisons.

**South Bend, Ind.**—The Commissioners of St. Joseph county will offer for sale, January 17, \$270,000 3½ per cent. bridge and asylum bonds.

**Ada, Minn.**—Bids will be received, January 4, for \$5,000 village bonds.—Peter Watson, Village Clerk.

**Hattiesburg, Miss.**—Council has practically decided to issue \$175,000 bonds, of which \$60,000 will be expended for constructing a City Hall, \$25,000 for school buildings, and the remainder for constructing five steel bridges, extending the water and sewer systems, additional street paving, and for other purposes.—Dr. J. D. Donald, Mayor; A. Fairley, City Clerk.

**Albany, N. Y.**—Contracts for barge canal construction work have been awarded by State Superintendent of Public Works Franchot, as follows: For bridge construction work on the Erie and Champlain canals, the United States Construction Company, for \$63,472, and for excavating the new enlarged canal near Mindenville, Montgomery county, to O'Brien and Hoolihan Contracting Company, Syracuse, for \$859,460.

**Asheville, N. C.**—The citizens have voted to borrow \$10,000 for erecting a city garbage crematory.

**Cincinnati, O.**—The purchase of 20 more street flushing machines has been recommended to the Board of Public Service.—J. S. Neave, Superintendent of Street Cleaning.

**Akron, O.**—Bids will be received, December 31, for the purchase of \$30,000 4 per cent. improvement bonds.—William A. Durand, City Auditor.

**Springfield, O.**—Council has authorized the purchase of flushing machines; the Board of Public Service has reached no decision as to the system to be adopted for cleaning streets.

**Richmond, Va.**—Council is considering issue of \$450,000 bonds for improvements.

**Seattle, Wash.**—The ordinance calling for bids on \$2,250,000 water bonds, \$2,250,000 sewer bonds, and \$60,000 park bonds has been drawn by the Corporation Council, and will be considered by Council.

**Benwood, W. Va.**—The matter of issuing \$50,000 in bonds for crematory is under consideration.

**Milwaukee, Wis.**—Council proposes to issue \$955,000 in bonds next year, as follows: \$1,000 South Side sewer bonds, \$50,000 street improvement, \$200,000 South Side viaduct, \$100,000 electric-light plant, and \$65,000 auditorium bonds.

**DO YOU want to get into a road which you can make more money in laying than you can an other; which has had a longer practical test: as to its permanence than any of the modern roads are old, in its general construction; the validity of the special improvements of which has been corroborated by late experiments of the government at Washington? Business getters only are invited. The Nash Road, Borough of Brooklyn, New York City, U. S. A.**

## INCORPORATIONS

**Chemical Gas, Heat, Light and Power Co., Kittery, Me.**; machinery. Capital, \$1,000,000. President, G. B. Blodgett, Bowley, Mass.; treasurer, A. E. Knowlton, Boston, Mass.; clerk, J. W. Hawes, Kittery, Me.

**Flaming Arc Lamp Co., New York City**; to manufacture arc lamps and electrical instruments. Capital, \$5,000. Incorporators: Mark L. Stone, 119 West 45th street; John Gray, 162 East 48th street; Moses Belchick, 344 East 85th street, all of New York.

**Frontier Gas Meter and Appliance Co., Niagara Falls, N. Y.**; to manufacture gas meters, fixtures, etc. Capital, \$25,000. Incorporators: John Seymour, 1443 Niagara street, Buffalo, N. Y.; George M. Tuttle and Robert L. Rice, 48 Glinck Building, Niagara Falls, N. Y.

**Twillingate Electric Co.**; construction of public and private works. Capital, \$100,000. Incorporators: Ralph W. Strong, St. Johns, N. F.; John B. Lawrence and William N. Ingram, 5 Beekman street, New York; Patrick G. O'Hara, 302 Clinton street, Brooklyn; Hiram Jordan, Gloversville, N. Y.

**Underfeed Gas Producer Co.**; to manufacture gas generators, lamps, etc. Capital, \$1,000. Incorporators: Royal C. Peabody, Lake George, N. Y.; George L. Nichols, Katonah, N. Y.; Walter E. Hope, 302 Cumberland street, Brooklyn.

**United American Construction Co., New York City**; building and constructing railroads, etc. Capital, \$50,000. Inspectors: Frank Hariden, Arthur Belmont, Ethel Hariden, The Bronx.

**Newark Gas and Electric Fixture Co., 225 Main street, East Orange, N. J.**; electricians, mechanical engineers, suppliers of gas and electricity, etc. Capital, \$25,000. Incorporators: Charles L. Beck, Charles O. Geyer, F. C. Ferguson, as above.

**New York Lignite and Construction Co., New York City**; to manufacture tile, bricks and building materials. Capital, \$15,000. Incorporators: John T. McGovern and James G. Grigg, 141 Broadway, New York; Henry W. Buxton, Morristown, N. J.; George R. Swain, Newark, N. J.

**North American Portland Cement Co., 15 Exchange place, Jersey City, N. J.**; to manufacture Portland cement, plaster, artificial stone, building blocks. Capital, \$10,000,000. Incorporators: J. Rogers Maxwell, 78 Eighth avenue, Brooklyn, N. Y.; Henry Graves, Jr., Irving-on-the-Hudson, N. Y.; Alfonso de Navarro, 13 West 46th street, New York; Henry C. Traexler and Edward M. Young, Allentown, Pa.; Arnold F. Gerstell, Easton, Pa.; John B. Wight, Montclair, N. J.; Richard W. Lesley, Haverford, Pa.; John B. Lober, Bryn Maur, Pa.; Ernest R. Ackerman, Plainfield, N. J.

**Wheatly Hills Water Co., to supply water.** Capital, \$25,000. Incorporators: Charles Crosby, 1 West 34th street, New York; H. P. Haas and Frank T. Leuinger, Pittsburg, Pa., and others.

**ATTENTION, PAVING BRICK MAKERS**—Would like to hear from brick block paving companies who have no agent in Rochester, N. Y.; whose brick will stand the test of City Engineer; good business assured. Address Box 723, Rochester, N. Y.

**GOOD OPENINGS for Managers familiar with machinery**; write us to-day, stating experience; service strictly confidential; offices in 12 cities. Hapgoods, 305 Broadway, New York.

For Machines to Drill, Blast and Test Holes and Water Wells, write "LOOMIS CO., TIFFIN, O."

High Grades  
of

PURE ASPHALT

The "Maltha"  
Brand

California Asphaltum Sales Agency

San Francisco Chicago New York London  
JOHN BAKER, Jr., Manager



## PERSONALS

BAILEY, FRANK M., former Mayor of Jefferson, Ga., and who filled other local offices, has again been elected Chief Executive of the city.

BERNARD, CHARLES, JR., Chief of the Fire Department of Madison, Wis., who has been in the service since 1871, has resigned, the same to take effect March 1; the position carries a salary of \$100 per month, which will probably be increased to \$125.

BRODERICK, JAMES C., Assistant Chief of the Fire Department of Detroit, Mich., succeeds Chief John Kendall, who retires January 1, after over forty years' service; John O'Neil, Chief of the First Battalion, becomes Assistant Chief of the Department; William H. Harris, promoted to Chief of the First Battalion; George J. Kelly, Chief of the Second; James W. Mathewson, Chief of the Third; Edward R. Dardis, Chief of the Fourth; William McGraw, Chief of the Fifth; T. E. Callaghan, Captain of Engine Company No. 8, Chief of the Sixth Battalion, and Frederick H. Roberts, Lieutenant of Hose Company No. 1, has been made Captain.

COLEMAN, JAMES S., builder of the new Croton dam, Street Cleaning Commissioner of New York City from 1881 to 1891, and one of the most widely known contractors in the country, died recently, aged sixty-three years. Mr. Coleman started the system of using city water commercially and cleared \$90,000 annually for New York on garbage disposal.

DE WITT, CHARLES, Civil Engineer of Port Clinton, Ohio, is making a preliminary survey for a sewer to be constructed in Put-in-Bay.

HARPER, E. A., City Engineer of Kansas City, Mo., is on thirty days' leave of absence, during which he will visit Cincinnati, Ohio, as well as points in Florida, and he will also investigate the system of drainage and street cleaning in Havana, Cuba, and will spend a short time with relatives on the Isle of Pines.

SERBONT, A., City Engineer of Narikaping, Sweden, is on a visit to America for the purpose of studying public works in municipalities.

SHAYER, HENRY L., and L. E. Sessions have been appointed by Mayor Archibald as Water Commissioners of Troy, N. Y., to succeed themselves.

SHERRARD, MORRIS R., City Engineer of Newark, N. J., and Prof. Charles McMillan, of Princeton University, have been retained by the Board of Managers as Consulting Engineers for the construction of the water supply system and sewage disposal plant for the new State Sanatorium for Tuberculous Diseases at Glen Gardner, N. J.

SMITH, CHARLES P., Mayor of Gadsden, Ala., recently went to Ludlow, Ky., to deliver to the First National Bank of that city \$15,000 of the \$30,000 sewer bonds which were previously purchased by the board through A. L. Rich & Co., bankers, of Cincinnati, O., who failed; the local banks advanced sufficient money to carry on the work and it is expected the contractors will be able to turn over the system to the city shortly after the first of the year.

STEEL, GEORGE H., of Hoboken, N. J., has gone South for a short vacation, and during his absence will work up his slate of appointments for the next year.

STONE, CHARLES H. H., has been appointed Chief Inspector of the New York State Gas and Electric Commission.

WELD, F. F., formerly with the Trussed Concrete Steel Company, of Detroit, Mich., has been made Engineer of the Reinforced Concrete Construction Company, of Pittsburg, Pa.

WHITE, MICHAEL J., was recently elected Mayor of Dover, N. H., defeating George J. Foster, who has been acting Mayor since the death of Mayor Pinkham, several weeks ago.

WOOD, ROSWELL L., will be inaugurated Mayor of Haverhill, Mass., January 1, for the fourth term, and Charles S. Ashley, ten times Mayor of New Bedford, Mass., assumes the reins of government, having defeated Mayor Thompson, who served two terms. Other cities in Massachusetts which will inaugurate are: Cambridge, Walter C. Wardwell; Chelsea, Edward E. Willard, reelected; Chicopee, Albert E. Taylor, reelected; Fall River, John T. Coughlin, reelected; Everett, Thomas J. Boynton, reelected; Lowell, Frederick W. Farnham; Lynn, Charles N. Barney, reelected; Somerville, Charles A. Grimmons, reelected; Northampton, Egbert I. Clapp; Worcester, John T. Duggan, reelected; Salem, Thomas G. Pinnock, reelected; Woburn, William E. Blodgett; Melrose, Eugene H. Moore; Holyoke, Nathan P. Avery, reelected; Malden, Dr. Charles D. McCarthy; Newburyport, Albert F. Hunt; Beverly, S. Harvey Dow; Medford, Clifford M. Brewer; Lawrence, John P. Kane, reelected; Fitchburg, James H. McMahon, reelected; Gloucester, George E. MacDonald, reelected; Waltham, John L. Harvey, Jr., reelected; Marlboro, Edward F. Brown; Springfield, William E. Sanderson; Taunton, John B. Tracy, reelected; Brockton, John S. Kent; Pittsfield, Allen H. Bagg, Jr.; Quincy, James Thompson, reelected.

## WANTED

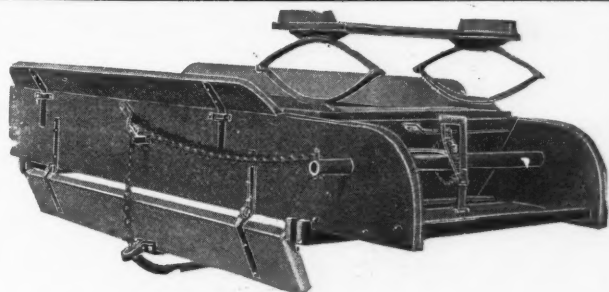
Copies MUNICIPAL JOURNAL AND ENGINEER dated January 3, 1906. 25 cents a copy will be paid for same.

MUNICIPAL PUBLISHING CO.,  
Flatiron Building, New York

WHEN YOU BUY OUR **ATKINS SPREADING WAGON** if it stands up and does its work, it is yours; if it does not, it is ours. This is the most perfect road-making wagon on the market, spreading all materials evenly and of uniform depth. It is a perfect Dump Wagon also.



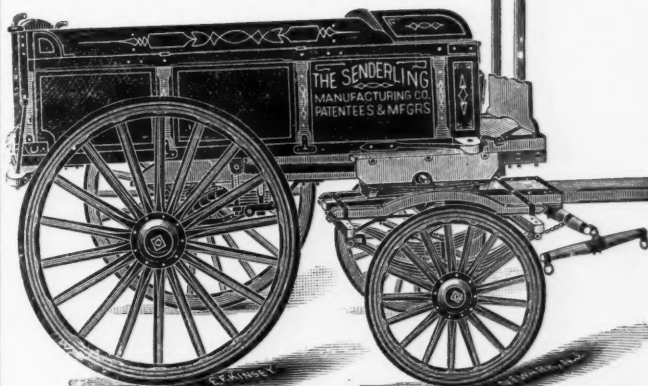
Send for Catalogue giving detailed description.  
**HENRY M. GLEN WAGON CO.,** 32 to 40 Oak Street,  
Seneca Falls, N. Y.



This dump-box **fits any gear wagon.** Is operated entirely with the foot. Endorsed by contractors everywhere. Its many good features will be explained upon application.

**EVERETT MFG. CO.,** 44 Lake St., Newark, N.Y.

Are You Familiar with  
**THE SENDERLING DUMPING TRUCK?**



SEND FOR DESCRIPTIVE MATTER

**The Senderling Mfg. Co.**

622 West 47th Street, New York City

## TRADE NOTES

**CONTRACTORS' SUPPLIES.**—Henry J. McCoy Company, 65 Dey street, New York City, has just issued a handsomely printed and well arranged catalogue of supplies and equipment for contractors, mines, mills and railways. Each item is arranged alphabetically in an index, with page reference, while in the descriptive matter appliances of a similar kind are grouped. Pretty much everything made of iron, from steam shovels to garbage cans, is included in the list. The catalogue, however, is made particularly for the use of contractors.

**WATERPROOFING.**—The Electric Cable Company, 17 Battery Place, New York City, has recently placed on the market liquid "Votax" compound. This material was used on the Armory of the Twenty-third Regiment, N.G.S.N.Y., in Brooklyn.

**CAST IRON PIPE.**—The Lynchburg Foundry Company, owing to increase in business, has found it desirable to increase its capital from \$350,000 to \$500,000. Less than five years ago this company had a capital of \$80,000 and employed only 60 men. Now it is doing a business of a million and a quarter dollars a year and is employing 500 men. In the pipe department alone the tonnage has been increased from 12 to 100 tons per day during the past four years. The Lynchburg Foundry Company owns and operates the McWane Pipe Works, the Radford Pipe Works and the Lynchburg Plow Works.

**CREOSOTED WOOD.**—The Wyckoff Pipe and Creosoting Company, Stamford, Conn., whose works are at Portsmouth, Va., manufactures conduits for underground wires and cables besides creosoting poles, railroad ties, wharf and bridge timbers. Referring to its creosoted conduits, the New York and New Jersey Telephone Company states that it has used 200 miles of telephone subway, some of it laid as early as in 1884, and a recent examination has shown no signs of deterioration.

**ELECTRIC EQUIPMENT.**—The General Electric Company, Schenectady, N. Y., in Bulletin No. 4,446 describes its Remote Control Field Rheostats to be used with railway generators and rotary converters. Bulletin No. 4470 deals with the Electric Motor in saw mill work. Bulletin No. 4473 describes the G. E.—81 Railway Motor, which, while electrically identical with G. E.—54 motor, is designed so as to allow the bottom part of the frame to swing down into a pit for inspection.

**GASOLINE TRUCKS.**—The Knox Motor Truck Company, Springfield, Mass., manufacturers of Atlas trucks, issues a catalogue of its delivery cars and passenger conveyances. The back cover contains a cut of their Type B watering cart, built for the Metropolitan Park Commission, Boston, Mass.

**NEW OFFICE.**—The Power and Mining Machinery Company, Cudahy, Wis., in conjunction with the Snow Steam Pump Works, of Buffalo, N. Y., has opened a new sales office at 719 White Building, Buffalo, N. Y., where the several types of gas generating apparatus, such as the Loomis-Pettibone system, suction and pressure gas plants, built by the Power and Mining Machinery Company, and the Snow gas engines, built by the Snow Steam Pump Works, will be handled. Mr. Seward Babbitt, Sales Manager of the Power and Mining Machinery Company, will make his headquarters at the Buffalo office.

**SPRAYOLOGY.**—Mr. Howard Evarts Weed, M.S., Landscape Architect, 1715 Railway Exchange, Chicago, Ill., formerly Entomologist and Horticulturist Mississippi Experiment Station, publishes a handbook describing the best methods of suppressing the more common injurious insects and fungous diseases.

## VITRIFIED PAVING BRICK AND BLOCK



Repressed  
and  
Wire Cut

LET US FIGURE  
WITH YOU

**THE UNITED BRICK COMPANY**  
Conneaut, Ohio



**Four-way adjustable street signs with reinforced steel tube posts and sheet metal perforated signs**

These signs are indestructible by the elements, do not rust or corrode, and can be read from a long distance and at any angle you approach them. Adjustable to the intersections, will carry as many signs as are needed for additional intersections. Write for catalogue. We contract with municipalities for signs and house numbering.

**AGENTS WANTED in EVERY STATE in the UNITED STATES to REPRESENT OUR LINE. Send for Catalogue.**

**Perforated house numbers in any finish a specialty**  
**THE AMERICAN STREET SIGN CO.**  
CLYDE, OHIO

**DO YOU KNOW THAT**

## LEAD WOOL

makes an absolutely tight pipe joint with no chance for a leak?

Do you know that Lead may be put into a joint without melting the Lead, simply by calking?

The largest Gas and Water-Works in the country are using Lead Wool to make joints with. Why not you? Samples gladly furnished.

**NEW YORK LEAD WOOL CO.**

93 NASSAU STREET,

NEW YORK CITY

## SANITARY STREET FLUSHING MACHINE CO.

MANUFACTURERS

CARLETON BUILDING

ST. LOUIS, U.S.A.





## PATENT CLAIMS

835,238.—Apparatus for Constructing Subaqueous Walls and the Like. Alfred J. Ducellier, Vineuil, near Chantilly, France. Serial No. 238,814.

The combination, with a caisson constituted by parallel upright walls, of a nose-section having side walls slidable along said first-named walls and open at its front portion to the passage of water, excavating mechanism mounted in said nose-section, and a compressed-air chamber in said caisson at the rear of said nose-section.

836,173.—Cast-Metal Pipe. Robert P. Barnstead, Boston, Mass. Serial No. 242,057.

Pipe-sections having each a female end provided with a plurality of helical threads each extending a semicircumference therein, and a male end formed with locking projections fitted to said threads, and provided with a packing filling the spaces between each male and female end.

836,211.—Road Filling and Leveling Device. William A. Pierce, Topeka, Kan. Serial No. 321,557.

In combination with a wagon, an attachment carried thereby adapted to engage the surface of the road to fill the ruts and level said surface, said attachment including a trailing chain, secured at one end to the rear portion of the wagon and projected laterally beyond one side thereof, and means for holding the chain in its laterally-projected position.

836,323.—Process of Sewage Disposal. John W. Keegan, Santa Rosa, Cal. Serial No. 272,926.

The improvement in processes of sewage disposal, which consists in maintaining substantial uniformity of anaerobic activity in an anaerobic bed by shifting the position of the region of defective anaerobic activity therein periodically.

## Civil Service Examinations

**Analyst.**—Geological Survey.—The United States Civil Service Commission announces an examination on January 9-10, 1907, to fill a vacancy in the position of analyst or assistant analyst, U. S. Geological Survey, at \$1,400 to \$1,800 per annum. Apply to the U. S. Civil Service Commission, Washington, D. C., or to the Secretary of any Board of Examiners for Form 1312.

**Civil Engineer.**—The United States Civil Service Commission announces an examination January 3-4, 1907, to secure eligibles to fill vacancies in the position of civil engineer in the Philippine Service at \$1,400. Apply to the U. S. Civil Service Commission, Washington, D. C., or to the Secretary of any Board of Examiners for application forms 2 and 375.

**Draughtsman.**—The United States Civil Service Commission announces an examination January 9-10, 1907, to fill a vacancy in the position of topographic and cartographic draughtsman, at a salary of \$1,000 per annum. Apply to the U. S. Civil Service Commission, Washington, D. C., or to the Secretary of any Board of Examiners for application Form 1312.

**Computer.**—The United States Civil Service Commission announces an examination on January 9-10, 1907, to secure eligibles to fill a vacancy in the position of computer in the Coast and Geodetic Survey at \$1,000 per annum. Apply to the U. S. Civil Service Commission, Washington, or to the Secretary of any Board of Examiners for Form 1312.

## Proposals

## Pumping Engines

Muskegon, Mich., Dec. 11, 1906.

Bids will be received by the Water Committee, up to January 28, 1907, 12 o'clock M., to furnish the city of Muskegon, Mich., with new pumping engines (steam or electric power) of the following capacity: One six million gallon per 24 hours; one ten million gallon per 24 hours. Bids to be made separately on each capacity. Plans and specifications will be on file in the Water Works Office.

PAUL S. MOON,

Chairman, Water Committee.

WILLIAM DIXON,

Superintendent of Waterworks.

## Sanitary Sewer System

Merchantville, N. J.

Sealed proposals will be received by the Mayor and Borough Council until 3 P.M., January 12, 1907, for the construction of a system of sanitary sewers. Certified check, \$3,000. Plans, proposal forms, etc., at office of borough clerk and at office of City-Wastes Disposal Co., Engr., 156 Fifth avenue, New York City.

A. W. MACCALLUM,

Chairman, Sewerage Committee.

## Storm Water Sewer

Office of the City Clerk,

Wichita, Kansas, December 7, 1906.

Sealed proposals will be received at this office until 5 o'clock P.M., January 21, 1907, for the construction of the Wichita storm water sewer, No. 5.

The approximate amount of labor and material necessary for the construction of the above sewer will be mailed to bidders on application to this office. The estimated cost of the above sewer is \$318,000. All work necessary for the construction of the above sewer to be done under the direction and supervision of the City Engineer of the City of Wichita, and according to plans and specifications on file in his office. Bidders will be required to enclose certified check in the sum equal to 5 per cent. of the amount bid, as a guarantee of good faith. Bidders will be allowed to bid on the entire system or any part thereof. The Mayor and Council reserve the right to reject any and all bids.

R. N. DORR, City Clerk.

## Power House, Head and Tail Race

Nanticoke, Pa.

Proposals will be received by the American Pipe Mfg. Company, 112 North Broad street, Philadelphia, Pa., up to January 15th, 1907, for the construction of a power house, head and tail race, etc., at Nanticoke, Pa. The right is reserved to reject any or all bids or to accept whichever bid that will be to their interest.

## Electrical Subway System

West Point, N. Y.

Sealed proposals, in triplicate, will be received here until 12 o'clock, noon, January 5, 1907, for the construction of an electrical subway system, as per drawings and specifications in this office. The U. S. reserves the right to accept or reject any or all proposals or any part thereof. Forms and specifications furnished upon application. Address Quartermaster, West Point, N. Y.

## THE CLEARFIELD CLAY WORKING CO.

Manufacturers of  
"CLEARFIELD VITRIFIED  
PAVING BLOCK"

Vitrified Brick of all kinds

CLEARFIELD, PENNA.



**FLAT FLAME GAS LAMPS**  
Giving from 10 to 25 candle-power can be increased to from  
**40 to 70 CANDLEPOWER**  
by the use of our attachment  
**CENTURY LIGHT & POWER CO.**  
35 Warren St., N. Y. City

## State Rights For Sale

OF

**Pratt Patent Automatic  
and Self Cleaning  
Sewer Inlet**

PENNSYLVANIA RESERVED

W. J. SHELDON,

McKeesport, Pa.

## Crematory or Refuse Destroyer

Office of the President of the Borough of Richmond, Borough Hall, St. George, New Brighton, New York City.

Sealed bids or estimates will be received by the President of the Borough of Richmond at the above office until 12 o'clock m., on Thursday, December 27, 1906, Borough of Richmond.

No. 1. For furnishing plans for the foundations, building, runway, connecting flues and chimney of a refuse destructor to be built at West New Brighton, in addition to furnishing all plans, specifications, supervision, labor, materials and appurtenances necessary for the erection and completion of the furnace and steam boiler portion of the proposed West New Brighton destructor at West New Brighton, Borough of Richmond, the City of New York, U. S. A.

For full particulars, see "City Record."

GEORGE CROMWELL,

President.

The City of New York, November 16, 1906.

**LEADITE**  
[THE BEST PIPE JOINTING MATERIAL  
FOR WATER AND GAS MAINS, ETC.]  
NO CAULKING REQUIRED. COST LESS THAN  
ONE-THIRD THE COST OF LEAD. ONE TON  
WILL DO MORE WORK THAN FIVE TONS OF  
LEAD. JOINTS WILL NEVER LEAK. IN USE  
11-12 YEARS IN PHILADELPHIA PA. NOW  
ADOPTED BY WATER DEPARTMENT. IN USE  
IN MANY CITIES.  
WRITE FOR PAMPHLET, PRICES, ETC.  
**THE LEADITE COMPANY OF AMERICA**  
642 HEED BUILDING, PHILADELPHIA.

**McWANE-LYNCHBURG**  
TRADE  
"CAST IRON PIPE"  
QUALITY BEFORE QUANTITY  
"CINDER IRON or  
other INFERIOR GRADES  
of METAL" referred to in  
all Cast Iron Pipe specifica-  
tions are produced by Pud-  
dling Mills, Rolling Mills,  
etc., in the form of "Scrap."  
There are none of these  
MILLS within hundreds of miles of us, but a dozen or more BLAST FURNACES,  
which, in the words of one of the most eminent metallurgists of our country, "yield foundry  
iron of unusual excellence and wide reputation," are located right in our "back yard."  
OUR CATALOG WILL BE MAILED ON REQUEST.  
MAIN OFFICE  
AND WORKS  
LYNCHBURG, VA.  
**McWANE PIPE WORKS**  
EASTERN OFFICE  
220 BROADWAY  
NEW YORK

## THE CUTLER MAILING SYSTEM AFFORDS INVALUABLE MAIL SERVICE FOR PUBLIC BUILDINGS

IN USE IN MUNICIPAL, COUNTY, STATE AND FEDERAL BUILDINGS THROUGHOUT THE COUNTRY, BEING EXPLICITLY AUTHORIZED BY THE POST OFFICE DEPARTMENT UNDER PROVISION OF A SPECIAL ACT OF CONGRESS. AS A PART OF THE POSTAL SYSTEM IT IS AVAILABLE FOR THE SERVICE OF SUCH PAPERS AS MAY BE LEGALLY SERVED THROUGH THE MAILS.



MODEL C, OPEN

WHERE THE STANDARD AUTHORIZED MAIL CHUTE EQUIPMENT IS DESIRED, THE CUTLER MAILING SYSTEM SHOULD BE SPECIFIED BY NAME.

DESIGNATE "MODEL C" IF THE VERY LATEST AND BEST FORM AS ILLUSTRATED HEREWITH IS REQUIRED. INTERIOR UNDER GOVERNMENT LOCK BUT INSTANTLY ACCESSIBLE TO AUTHORIZED PERSONS.

INSTALLED IN CONNECTION WITH THE U. S. FREE COLLECTION SERVICE ONLY BY THE SOLE MAKERS AND PATENTEES.

THE CUTLER MANUFACTURING CO.  
GENERAL OFFICES, CUTLER BUILDINGS, ROCHESTER, N. Y.

## FACTORY AND INVESTMENT LOCATIONS.

The South offers unexcelled opportunities for all kinds of industries and to the man wishing profitable investment in lands, mines, water power etc., and the best business openings.

The territory reached by the

### Southern Railway

AND

### Mobile & Ohio Railroad

is unequalled anywhere in its advantages for factory locations.

The development of this territory is remarkable. In the last three years investments have been nearly \$300,000,000. There are special advantages in the way of cheap living and pleasant surroundings for employes. There are the largest hardwood forests in America, a vast area of coal and iron ore, splendid water powers, rail and water transportation to all sections, growing home markets.

LOCAL CAPITAL WILL JOIN WITH OUTSIDE CAPITAL.

Publications and special information sent and aid given in finding the location desired. Address the nearest office.

M. V. RICHARDS,  
Land and Industrial Agent,  
WASHINGTON, D. C.

CHAS. S. CHASE, Western Agent,  
622 Chemical Building,  
St Louis, Mo.

M. J. HAYS, Eastern Agent,  
41 Park Row,  
New York City.

## HOMeward FROM California

Complete your pleasure trip by returning via SHASTA-NORTHERN PACIFIC ROUTE. Stopovers permit you to see Portland and the beautiful Columbia River Region; Tacoma, Seattle, and the Puget Sound Country; Spokane and the Inland Empire, and Helena and Butte *en route*.

Best of all, stop at Livingston and make the delightful side trip through

## Yellowstone Park

IN 1907

No finer scenic or tourist region in all America.

BEST OF TRAINS—BEST OF SERVICE

For "Wonderland, 1906," and "Eastward through the Storied Northwest," send six cents each.

For rates and full information write

W. F. MERSHON, G. A. P. D., 319 Broadway, New York.

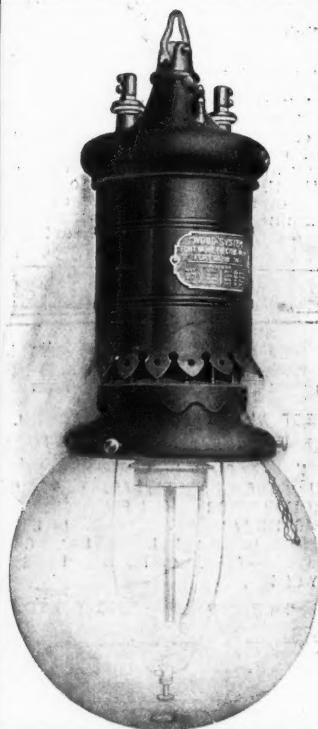
## Northern Pacific Railway

A. M. CLELAND,  
General Passenger Agent,  
St. Paul, Minn.

308

## Arc Lamps to Burn

if you want that kind. It's the only kind we make. We don't make a lamp that only burns current, takes all the energy in and gives none out. You don't want that kind. We make the kind that the people want.



Tell us your wants

## Fort Wayne Electric Works

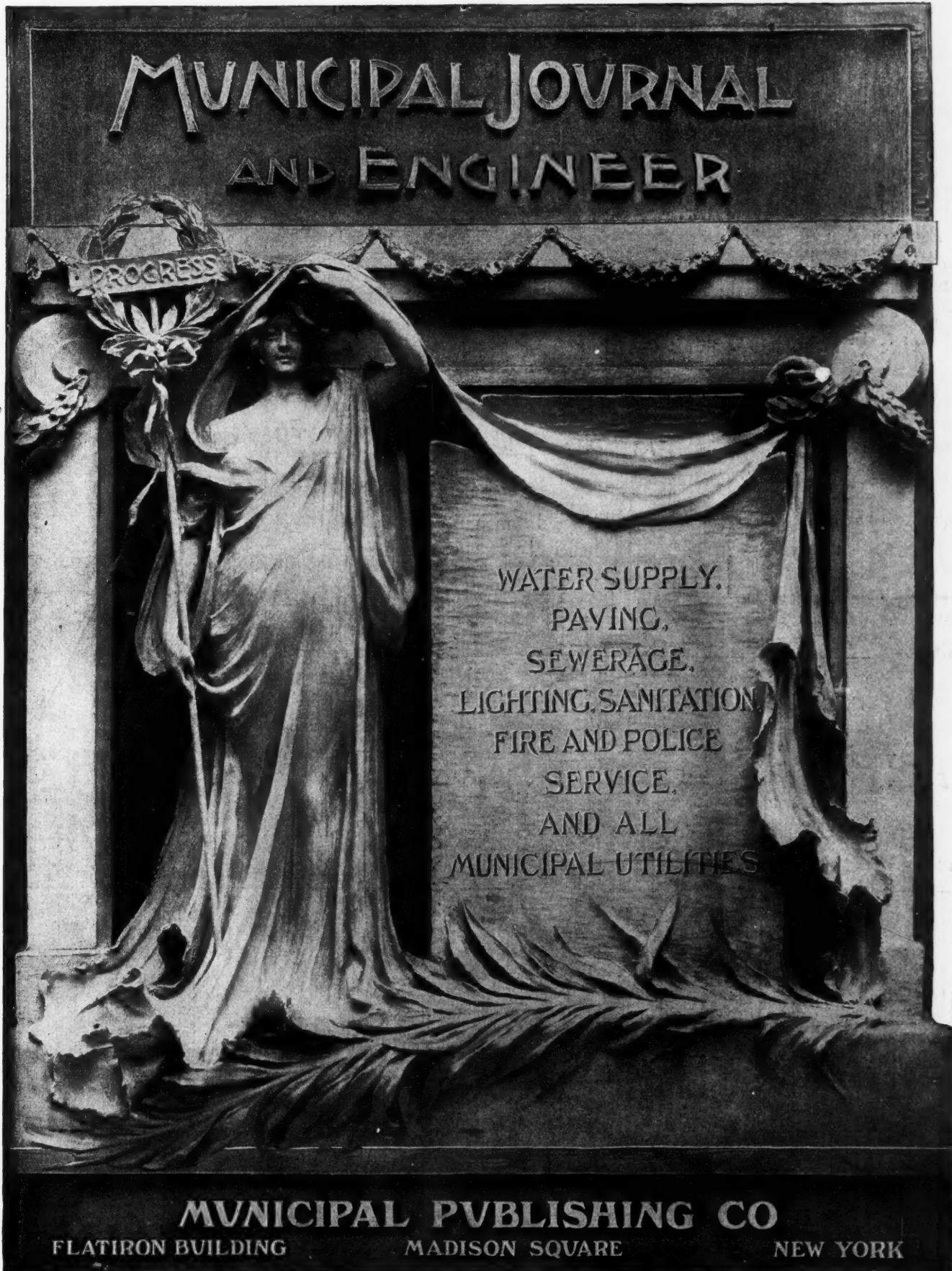
"Wood" Systems  
Fort Wayne, Ind.

525



Volume XXI. Number 23

December 5, 1906



**MUNICIPAL JOURNAL  
AND ENGINEER**

WATER SUPPLY.  
PAVING,  
SEWERAGE,  
LIGHTING, SANITATION,  
FIRE AND POLICE  
SERVICE,  
AND ALL  
MUNICIPAL UTILITIES

**MUNICIPAL PUBLISHING CO**  
FLATIRON BUILDING      MADISON SQUARE      NEW YORK

NEARLY 40 CITIES IN THE UNITED STATES NOW SUCCESSFULLY USING  
THE SANITARY AUTOMATIC STREET FLUSHING MACHINES.

# THE REMEDY

"The Sanitary Automatic"

The machine that solved  
the problem of clean  
streets.

for Dirty, Dusty,  
Unhealthy Streets

IS THE

## SANITARY AUTOMATIC STREET FLUSHING MACHINE SYSTEM

The only modern method of  
Municipal Street Cleaning

Write for our new illustrat-  
ed booklet

It will interest you.

### WHICH IS BETTER

into the stores and homes and into the eyes and lungs of your business men and citizens?

The only sanitary method of street cleaning is The Automatic Flushing Machine System. It eliminates the dirt, keeps down the dust, and leaves your streets clean as a scrubbed floor.

To wash from your streets the disease-breeding dirt  
and dust or permit it to remain there to be blown

## SANITARY STREET FLUSHING MACHINE CO.

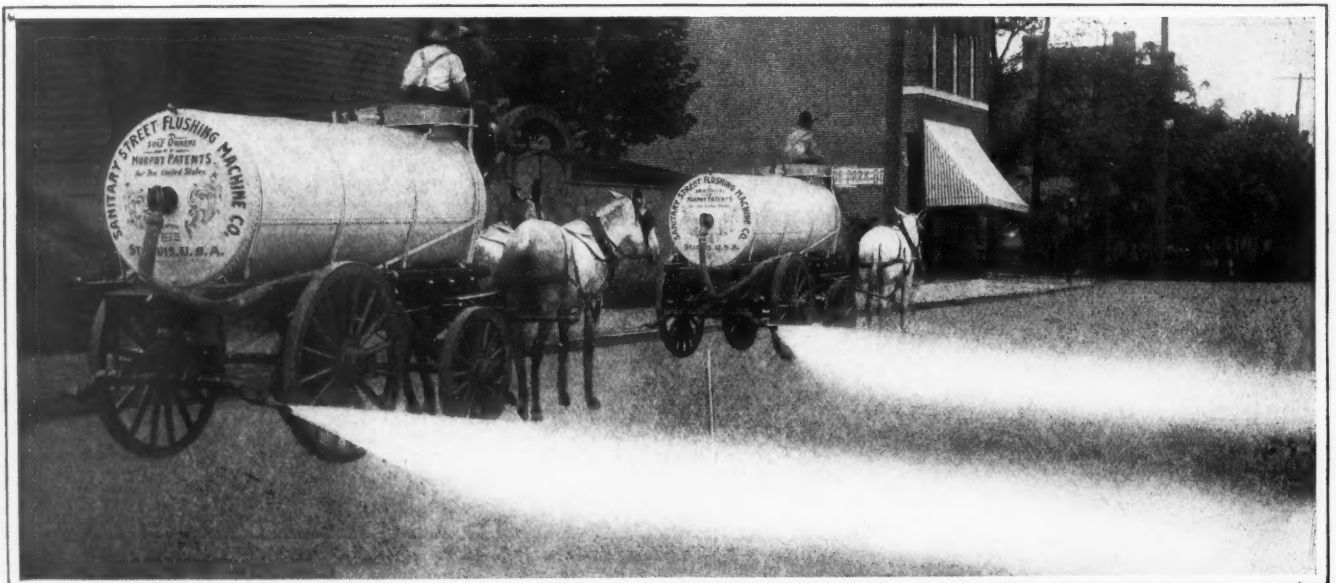
(Sole Owners Murphy Patents for the U. S.)

Formerly Sanitary Street Cleansing and Sprinkling Machine Co.

### CONTRACTING DEPARTMENT

Suite 404 Carleton Building

St. Louis, U. S. A.



THE SANITARY AUTOMATIC IMPROVED TYPE IN OPERATION.





# REINFORCED CONCRETE PIPE

*For  
Sewers,  
Conduits  
and Railroad  
Culverts*

REINFORCED INTERLOCKING  
JOINTS MAKE IT THE ONLY  
SANITARY SEWER IN EXIST-  
ENCE.

IS THE STRONGEST AND MOST DURABLE.  
WILL STAND ANY FILL

Our Catalogue tells all you would like to know and  
shows how Reinforced Concrete Pipe is revolution-  
izing the building of sewers, conduits and culverts.

**Reinforced Concrete Pipe Company**  
*Jackson, Michigan*

Test showing  
strength of joints.  
Cut shows 3 sec-  
tions, coupled with  
bearing pieces at  
ends only. Two  
joints are 4 inches  
from the ground  
and entirely un-  
supported.



## Increased Efficiency of Fire Apparatus!

¶ "The main growth in the demand for rubber tires is directly traceable to the results given by them in actual service."

¶ "I will predict that another five years will see the use of rubber tires as general on fire apparatus, no matter what the type of apparatus, as it is to-day on carriages."

—From the address of Robert Kiersted, Chief Engineer  
Newark, N. J., Fire Department at the 34th Annual  
Convention of Fire Engineers, Dallas, Oct. 9, 1906.

This is his opinion after using on every piece of apparatus

### "Firestone" SIDE-WIRE TIRES

We will mail free upon request, copy of this address in printed form to any Fire Department or City Official  
in the United States or Canada.

FIRESTONE TIRE & RUBBER CO. - - - Akron, Ohio

ADDRESS DEPT. A

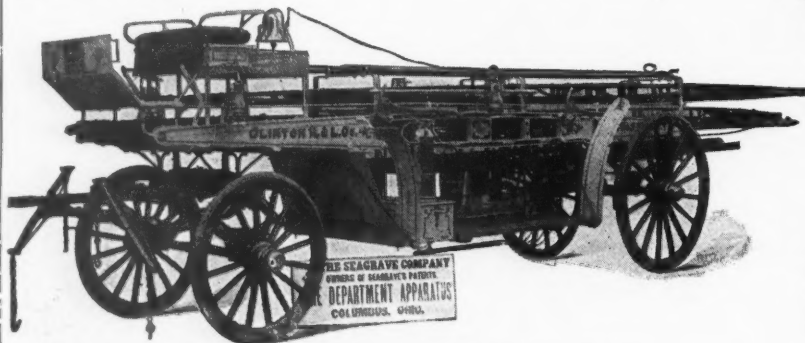
## THE SEAGRAVE COMPANY

MANUFACTURERS OF

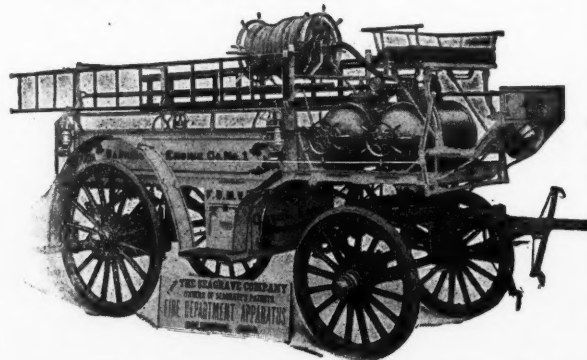
Fire Apparatus, Trussed Ladders  
and Equipments, Etc.

COLUMBUS, OHIO, U. S. A.

The Seagrave Company's Aerial Ladder has passed the experimental stage, and is now universally recognized as the best Aerial yet produced. It is the only ladder that can be hoisted and extended to full length by TWO men in TEN seconds.



A SEAGRAVE City Service Hook and Ladder Truck.



SEAGRAVE Combination Chemical Engine and Hose Wagon

**Not Members of any Trust.**

City and Village Councils and purchasing committees are hereby cautioned that all purchasers or manufacturers of infringements on any of our Foreign and United States Patents on Trussed Ladders and Equipments are alike liable to the Patentee for damages.

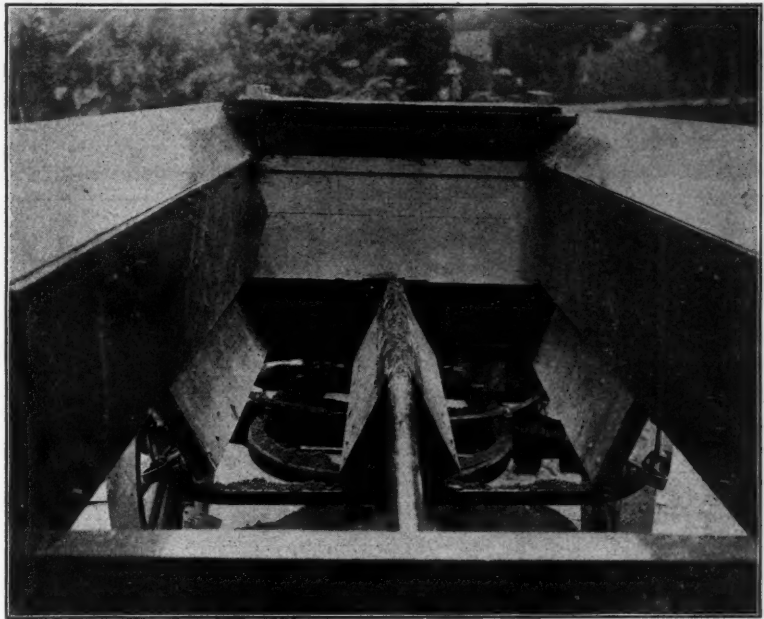


**T**HE demand for dump-wagons is constantly increasing. Few teamsters have bought them on account of high prices. Our Dump-Box is made to fit any gear. The load is divided evenly over the four wheels. The cost is about one-third that of a regular dump wagon. Load may be dumped in one pile, or spread along for a considerable distance, as desired.

*Bottom Boards* are swung open, and returned to former position entirely with the foot; no necessity of driver leaving the seat, or stopping team. A CLEAR OPEN BOX with no cross sections. SPRING SEAT with each box. OUR TRUSS supports the bottoms just where the downward pressure is greatest. The CENTER BOTTOMS protect the reach from end to end. NO DIRT touches the reach, in dumping!

THE U. S. GOVERNMENT has bought our boxes for use along the PANAMA CANAL. It has met the exacting requirements of contractors all over the country. Write for Prices and Information.

**Everett Manufacturing Co., 44 Lake Street, Newark, New York**



## Dump Wagons vs. Farm Wagons and Experience

Time has proven that a good Dump Wagon cannot be made of the same material as farm wagons.

The service required of them is entirely different.

A low-priced Dump Wagon is usually a high-priced farm wagon. Ten to Fifteen Dollars saved in original cost is quickly lost in repairs and results in a fixed charge on your equipment for all time



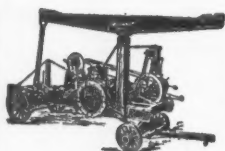
We build Dump Wagons only of the best material at a fair price. We know what material goes into their construction. We know the workmanship. If the wagon stands up and does its work, it is yours; if it falls down, it is ours. Can we offer any better guarantee of our wagons?

Send for Catalogue giving Detailed Description.

**THE HENRY M. GLEN WAGON CO.,** 32 to 40 Oak Street  
SENECA FALLS, N. Y.

<b>CAPACITY—</b> 40,000 TONS PER YEAR	<b>GLOBE ASPHALT CO.</b>	<b>99.6 PER CENT. BITUMEN</b>
REFINERS OF	<b>“OBISPO” BRAND</b>	<b>CALIFORNIA ASPHALT</b> LIQUID AND SOLID
<b>ANTI-TRUST</b>	OVER 200 MILES PAVEMENT LAID SINCE 1900	ADDRESS ALL INQUIRIES <b>405 Blakewell Building, Pittsburg, Pa.</b>

High Grades of	<b>PURE ASPHALT</b>	The “Maltha” Brand
<b>California Asphaltum Sales Agency</b>		San Francisco Chicago New York London JOHN BAKER, Jr., Manager



**A DRILLED WELL**  
is an unfailing source of Water Supply  
**Our Business is Well Drilling**  
We're equipped to do good, rapid work at reason-  
able figures. Write us, it may pay you :  
**ARTESIAN WELL & SUPPLY CO.**  
Providence, R. I.

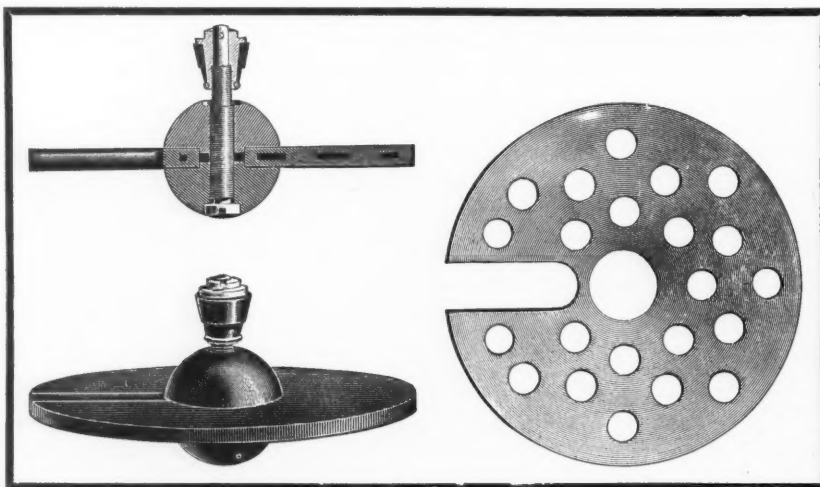
The Municipal Journal and Engineer  
should be on your library table as a  
constant current reference to all Municipal  
work.

## All 'Requisites of the Perfect Water-Meter Are Found in the “LAMBERT”

*Has no equal for accuracy and wearing quality. Largest displacement per oscillation of the disk.*

Our patented unbreakable Disk Piston, reinforced with an internal steel plate,  
is an important point of superiority

All  
Parts  
Aligning  
to a  
Common  
Centre



The  
Best  
Bronze  
Compo-  
sition  
Used  
Through-  
out

The growing popularity of the water-meter system is attributed by many to the  
inherent excellence of the “LAMBERT” meter. Where “LAMBERT” meters  
are selected, success is assured.

**THOMSON METER CO.**

79 WASHINGTON STREET  
BROOKLYN, N. Y.





# Tarvia

## *The Dust Layer*

TARVIATED MACADAM ON THE BOSTON POST ROAD AT STAMFORD

WHEREVER automobiles or heavy traffic on macadam roads create the intolerable dust nuisance, TARVIA affords an immediate and thorough remedy. It is far more economical than water sprinkling, which only lays the dust for a few hours.

TARVIA not only prevents dust formation, but prevents surface wear.

It really suppresses dust by eliminating the cause of it; First, by making the surface of the road absolutely waterproof so that rain passes off to the gutters immediately instead of settling and sinking into the pores and tiny openings of the top dressing; Secondly, it acts as a binder of the top dressing and prevents the loosening and grinding of the stones under the action of traffic.

The appearance of a macadam road treated with TARVIA closely resembles asphalt, and such a road is dustless in the same sense that asphalt is. It can be flushed with a hose, or cleaned with street-sweepers' brooms. The durability of the Tarviated surface is about one year after the first application, and about two years after the second application under ordinary traffic conditions.

For parks, for automobile thoroughfares, and for small towns where macadam is used as street pavement, TARVIA furnishes an ideal and well-proven method of dust suppression and highway improvement.

Further information, estimates, free booklets, etc., will be gladly furnished on request by the engineers of our Tarvia Department. Address our nearest office.

## BARRETT MANUFACTURING COMPANY

New York  
Chicago  
Cincinnati

St. Louis  
Philadelphia  
Cleveland



Kansas City  
Allegheny  
New Orleans

Minneapolis  
Boston

## HOMeward FROM California

Complete your pleasure trip by returning via the NORTHERN PACIFIC-SHASTA ROUTE. Stopovers permit you to see Portland and the beautiful Columbia River Region; Tacoma, Seattle, and the Puget Sound Country; Spokane and the Inland Empire, and Helena and Butte en route.

Best of all, you may stop at Livingston and make the delightful side trip through

## Yellowstone Park

No finer scenic or tourist region in all America.

### BEST OF TRAINS—BEST OF SERVICE

For "Wonderland, 1906," and "Eastward through the Storied Northwest," send six cents each.

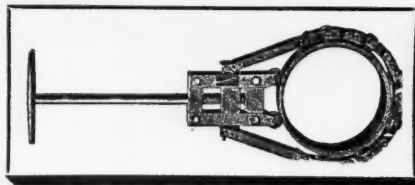
For rates and full information write

W. F. MERSHON, G. A. P. D., 319 Broadway, New York.

## Northern Pacific Railway

A. M. CLELAND,  
General Passenger Agent,  
St. Paul, Minn.

307



## ELLIS-FORD PIPE CUTTERS

BEST MATERIAL AND WORKMANSHIP  
HIGHEST EFFICIENCY  
OPERATES IN LEAST SPACE

Will cut all sizes of cast, wrought or steel pipe from 4 in. to 12 in. inclusive, regardless of variation in weight or thickness.

Can be operated in less space than any other cutter made, on account of the great number of cutting wheels in contact with the pipe.

We send them on trial. Write for full particulars and prices.

**ELLIS-FORD MFG. CO.** 93 CRISWOLD ST.  
DETROIT, MICH.

## Books on Water Supply

**WATER-FILTRATION WORKS.**—By James H. Fuertes, member Am. Soc. C. E. 12mo, xviii + 283 pages, 45 figures and 20 half-tones. \$2.50.

**WATER-WORKS FOR SMALL CITIES AND TOWNS.** Describing the methods of construction of the various portions of a water-works plant. —By John Gooddell. 281 pages, 53 illustrations. Price, \$2.00 net.

**THE PURIFICATION OF PUBLIC WATER SUPPLIES.**—By John W. Hill, M. Am. Soc. C. E. 8vo. Cloth: 304 pages; 35 illustrations. \$3.00.

**WATER-SUPPLY ENGINEERING.**—By A. Prescott Folwell. Second Edition, Revised and Enlarged. 8vo, xiv + 570 pages, illustrated with 95 figures and 19 full-page plates. Cloth: \$4.00.

**WATER-WORKS DISTRIBUTION: A Practical Guide to the Laying Out of Systems of Distributing Mains for the Supply of Water to Cities and Towns.**—By I. A. McPherson, A. M. Inst. C. E. 8vo. Cloth, with Folding Plates, Diagrams and Illustrations. Price, \$2.50.

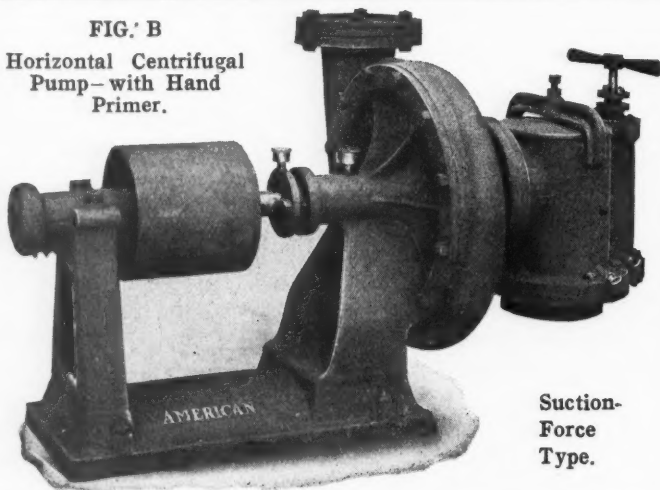
SUPPLIED BY THE

**Municipal Journal and Engineer**

Flatiron Building, New York City

# "American" Centrifugal Pumps

FIG. B  
Horizontal Centrifugal  
Pump—with Hand  
Primer.



Suction-  
Force  
Type.

**For City Water Works.  
Moving Liquids in the  
Brewery, Hot or Cold.  
Ditch and Trench Work.  
Irrigation or Reclama-  
tion Work.**

*Or any Water Pumping Proposition re-  
quiring economy and efficiency.*

*Sold under a positive guarantee of  
mechanical efficiency.*

Manufactured by

## THE AMERICAN WELL WORKS

AURORA, ILLINOIS, U. S. A.

Chicago, First National Bank Building.  
San Francisco, Cal., 305 Market St.


New York, 2-4 Stone St.

Joplin, Mo.

Denver, Colo., Morse Bros. Machine and Supply Co.

Dallas, Texas.  
J. H. Menge & Co., New Orleans, La.





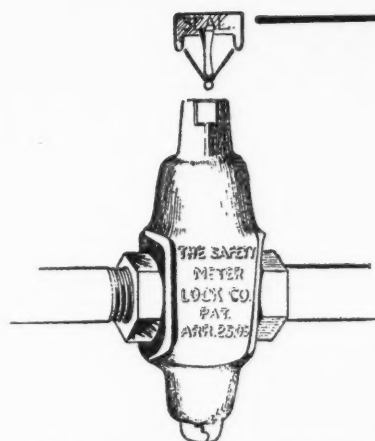
**McWANE PIPE WORKS**  
 "CINDER IRON or other INFERIOR GRADES of METAL" referred to in all Cast Iron Pipe specifications are produced by Puddling Mills, Rolling Mills, etc., in the form of "Scrap." There are none of these MILLS within hundreds of miles of us, but a dozen or more BLAST FURNACES, which, in the words of one of the most eminent metallurgists of our country, "yield foundry iron of unusual excellence and wide reputation," are located right in our "back yard."  
 OUR CATALOG WILL BE MAILED ON REQUEST.

MAIN OFFICE AND WORKS LYNCHBURG, VA. **McWANE PIPE WORKS** EASTERN OFFICE 220 BROADWAY NEW YORK



High and Low Pressure  
**SLUICE GATES**  
 For Water Works and all other Purposes

The great new Croton Dam of the New York City water supply is equipped with our product.  
 All gates bronze mounted on all bearing surfaces.  
 Send for our June circular.  
**COLDWELL - WILCOX CO.,**  
 Newburg, N. Y.



ORDINARY STOP COCK CLOSED

## Seal Your Water and Gas Meters

and prevent manipulation or tampering

Our product embraces dial and union seals for all makes of meters for both Gas and Water Companies, and we are prepared to make any special seal for any purpose. Our line has received the hearty endorsement of users throughout the entire country. Send for Catalogue

## SAFETY METER LOCK CO.

Columbus, O.

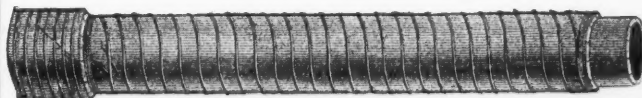
Office, Union Natl. Bank Bldg. Factory, Buttler Ave. & Factory St.



UNION SEAL LOCKED

## Washington Pipe and Foundry Co.

Largest Plant of its Kind in the World



Manufacturers of

## Machine Banded Wooden Stave

AND

## Continuous Stave Pressure and Conduit Pipe

For Waterworks Systems, Irrigation, Domestic Water Supply, Power Plants, Fire Protection for Cities, Dredge Work, Towns, Mills and Manufacturing Plants, Hydraulic Mining, Salt Water Mains, Insulated Wire Conduits, Special Pipe for Mines, Steam Pipe Casings.

Wooden Trucks and Towers for all purposes.

Office, Factory and Works:

1512 to 1620 Center St., & 3001 to 3019 Asotin St.

**TACOMA, WASH., U. S. A.**



Prices for LARGE PRINTS up to 4 1/2 x 12 Ft.

BLACK PRINTS on paper per Square Foot 3c.

BLUE PRINTS on paper per Square Foot 2c.

BLUE or BLACK PRINTS on CLOTH per Square Foot 5c.

Sample Prints mailed on Application. Write for Price List No. 16 of

## DRAWING MATERIALS

and Samples of Drawing Papers

**E. G. SOLTSMANN, 125 East 42d St., New York, N. Y.**

## Automatic Controlling Valves

FOR

## Sewage Disposal Works

A new appliance for automatically operating sluice, gate or flap valves either single or in series.

Capable of being used as timed valves for draining filters or contact beds, also for discharging contents of a tank dosing onto a number of filter or contact beds in rotation, or of rotating a continuous flow upon a series of beds without loss of head. Simple, reliable and better than siphons.

**W. S. SHIELDS, 1715 Marquette Building, Chicago, Ill.**



## UNIVERSAL PIPE

for Water, Gas, Com-  
pressed Air, etc.

THE above illustration shows clearly the joint in Universal Pipe, iron to iron, without the use of packing in any form. It will make up absolutely and permanently tight, and the saving in the cost of lead, okum, fuel, time and labor makes Universal Pipe cheaper when installed than any other cast-iron pipe. Hundreds of miles in use throughout the country have demonstrated that it will remain tight under severe conditions of jar, vibration, settling, expansion and contraction. "U" pipe will earn its own cost in the saving of product.

Write for "The Leaky Joint Problem and How Solved," containing interesting statistics on main leakage, and information relative to Universal Pipe.



**Central Foundry Co.,**

116-N Nassau St., New York City  
87-N North May St., Chicago, Ill.



### Carson Trench Machine Co.

BOSTON, U. S. A.

Forty cities save money and keep their streets open by using our Trench Machines on their sewer jobs. Send for Catalogue. Correspondence from contractors invited.

Branch Offices:

10 Barclay Street, New York

Park Building, Cleveland



### DAVISON FOUNDRY COMPANY

235 Johnson St., Chicago, Ill.

### Manholes and Catchbasins

Curbs and Covers for cities, towns and villages. Covers for telephone and electric light conduits. Also manufacturers of power transmission machinery.



### What Is Daus' Tip-Top?

To Prove that Daus' "Tip-Top" is the best and simplest device for making 100 Copies from pen-written and 50 Copies from type-written original, we will ship complete duplicator, cap size, without deposit on ten (10) days' trial. Price, \$7.50, less trade discount, 33 1/3 per cent., or **\$5 Net.**

### THE FELIX H. A. DAUS DUPLICATOR CO.

Daus Building.

111 John St., New York City



Contractors'  
Drainage  
Sewerage

### PUMPS

Handling Dirty, Gritty and Sandy Liquids without Wear, Oil or Care. Pumping Outfits for Contractors, Mining, Irrigating, Railroad, Quarry, Drainage and Manufacturing purposes. Second-hand Engines, Boilers, Pumps and other Machinery always on hand. Exchanging.

**MASLINS, -** 165-167 First Street, Jersey City, N. J.

## Patrol Wagons

FOR ONE OR  
TWO HORSES

CITY or SUBUR-  
BAN TOWNS



### FULTON & WALKER CO.

Wagons for Business, Ambulances,  
Patrol Wagons, Garbage Wagons

Write for Catalogue  
and Illustrations

20th and Filbert Streets  
PHILADELPHIA

## FACTORY AND INVEST- MENT LOCATIONS.

The South offers unexcelled opportunities for all kinds of industries and to the man wishing profitable investment in lands, mines, water power, etc., and the best business openings.

The territory reached by the

### Southern Railway

AND

### Mobile & Ohio Railroad

is unequalled anywhere in its advantages  
for factory locations.

The development of this territory is remarkable. In the last three years investments have been nearly \$300,000,000. There are special advantages in the way of cheap living and pleasant surroundings for employes. There are the largest hardwood forests in America, a vast area of coal and iron ore, splendid water powers, rail and water transportation to all sections, growing home markets.

LOCAL CAPITAL WILL JOIN WITH OUTSIDE CAPITAL.

Publications and special information sent and aid given in finding the location desired. Address the nearest office.

M. V. RICHARDS,  
Land and Industrial Agent,  
WASHINGTON, D. C.

CHAS. S. CHASE, Western Agent,  
622 Chemical Building,  
St. Louis, Mo.

M. A. HAYS, Eastern Agent,  
41 Park Row,  
New York City.



## ENAMELED IRON SIGNS AND PRESS WORK OF ALL KINDS

**6TH STREET.**

House Numbers, Fire Alarms, Automobile License Plates, Road Signs, Spitting Prohibited, Park Ordinances, Keep off the Grass, etc.

### STREET NAMES

### ENAMELED IRON SIGNS FOR ALL PURPOSES

\*Pressed signs with raised surface, made on heavy gauge iron, brilliant and attractive. The best sign for outside uses. Will last a lifetime.

Send for catalogue

**The Baltimore Enamel & Novelty Co.**

90 W. Broadway, N. Y. All communications to BALTIMORE, MD.



### Four-way adjustable street signs with reinforced steel tube posts and sheet metal perforated signs

These signs are indestructible by the elements, do not rust or corrode, and can be read from a long distance and at any angle you approach them. Adjustable to the intersections, will carry as many signs as are needed for additional intersections. Write for catalogue. We contract with municipalities for signs and house numbering.

AGENTS WANTED in EVERY STATE in the UNITED STATES to REPRESENT OUR LINE. Send for Catalogue.

Perforated house numbers in any finish a specialty  
**THE AMERICAN STREET SIGN CO.**  
CLYDE, OHIO

## Municipal Proposal Advertising

SHOULD BE INSERTED IN

**Municipal Journal and Engineer**

THE ONLY WEEKLY MUNICIPAL PAPER

## FLINT BRICK & COAL CO.

PAVING, SIDEWALK,  
SEWER & BUILDING **BRICK**  
DES MOINES, IOWA.

## Crown Sanitary Flooring



TRADE MARK REGISTERED

Asbestos Building Papers, Roofing and Mineral Wool

For Hospitals,  
Schools and  
Residential Work

**Robert A. Keasbey Co.**

89 Pearl St., Boston  
Chicago, Ill.

100 N. Moore St., New York  
Cincinnati, Ohio

## High Grade Refined Asphalt The "Maltha Brand"

FOR PAVING AND ROOFING

PURE : DURABLE  
RELIABLE : UNIFORM

Graded to Standard  
Impervious to Water  
Excels so-called  
"natural" asphalts

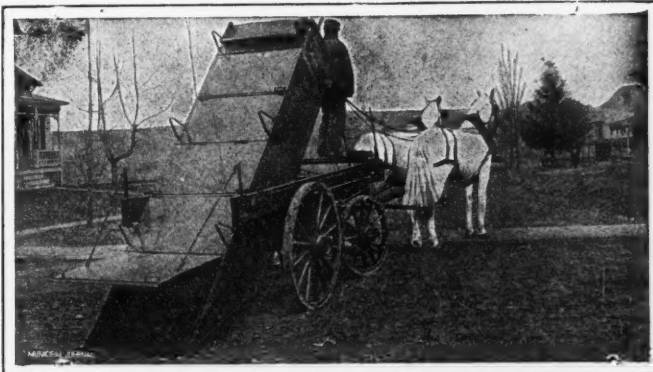
**CALIFORNIA ASPHALTUM SALES AGENCY**

SAN FRANCISCO

CHICAGO

NEW YORK

LONDON



Haywood Sanitary Wet Garbage Wagon

## SPECIAL GARBAGE WAGON

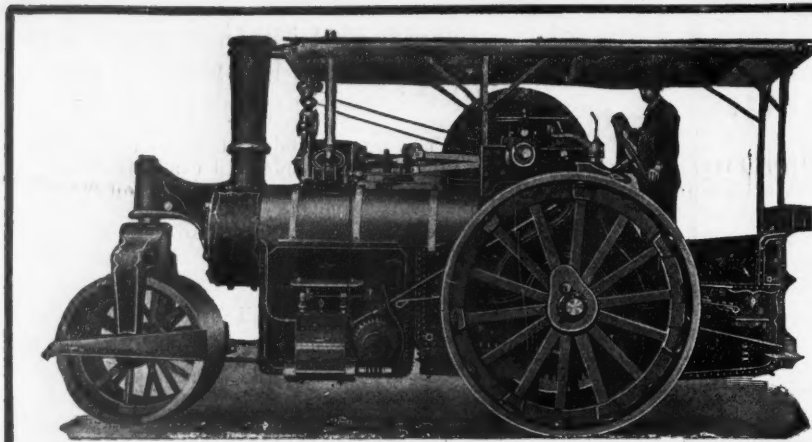
This wagon is constructed with a tight steel box with doors on top which open up to receive the garbage, and is especially adapted for municipal work and gathering wet garbage, and is so arranged that it carries its load equally on the forward and rear axle. To dump the wagon, the driver simply sets his brake on the hind wheels, puts his foot on the lever, backs up his team, and discharges his load over the hind axle. The door on the rear opens automatically, and allows the load to discharge. We build these wagons from 400 to 800 gallons capacity. Built on orders only. Specifications on application.

We also manufacture **DUMP WAGONS** for all other purposes.

Inquiries solicited from contractors and public officials.

**HAYWOOD WAGON CO.**

BALDWINVILLE, N. Y.



## SPRINGFIELD Steam Road Rollers

ALL KINDS ALL SIZES

MADE BY

THE KELLY - SPRINGFIELD  
ROAD ROLLER CO.

SPRINGFIELD,

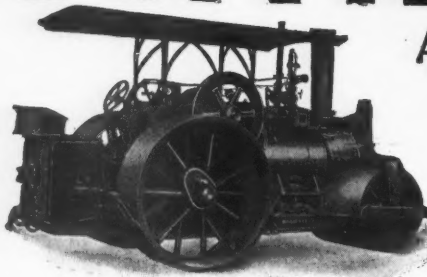
OHIO, U. S. A.

Send for Catalogue.

# BUFFALO PITTS

Steam Rollers  
ARE STANDARD

MADE FOR ALL PURPOSES  
FROM 2 TONS TO 20 TONS



Asphalt Rollers, Macadam Rollers, Combination Rollers,  
Tandem Rollers, Golf Rollers, Road Scarifiers, Etc.

Write for Catalogue:

Eastern Offices:

15 Court Square, Boston

150 Nassau St., New York

Buffalo Steam Roller Co.

BUFFALO, N. Y., U. S. A.

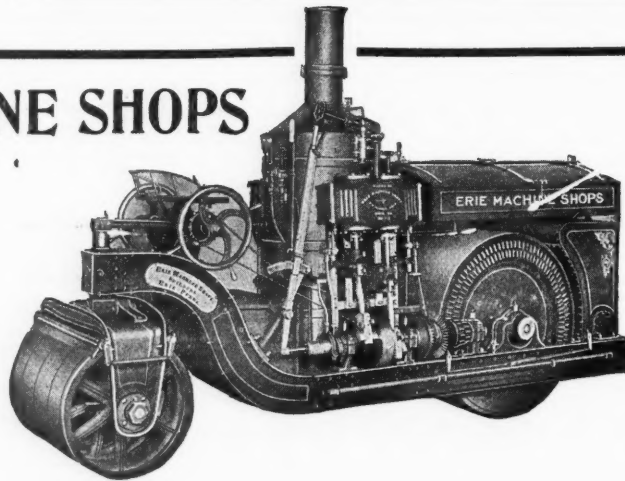
## ERIE MACHINE SHOPS

P. W. DIETLY

Proprietor

1303 PEACH STREET

ERIE, PA.



This is an illustration  
of our

20th Century  
Roller

Send for Catalogue of  
Rollers and Mixers

## ROAD MAKING and STONE BREAKING

Climax portable and stationary plants  
are seen everywhere—there's a reason.  
They are most economical because they do the greatest amount  
of work at smallest power cost.



Write for Catalog

Climax Crushers  
Climax Elevator  
Climax Bins  
Climax Screens  
Portable or Stationary  
Plants

Climax Road Machine Co., Marathon, N. Y.

## Municipal Public Works

Their Inception, Construction, and Management

By S. Whinery, C. E. 341 pages. Cloth, \$1.50, net.

CONTENTS—Importance of Municipal Public Works. Municipal Organization. Preparations for Municipal Work. Direct Work vs. Contract Work. Advertising Opening Bids, and Awarding Contracts. The Contract. The Contractor. The Supervision of Public Work. Maintenance and Repair of Public Works. Economy, Real and False. Guaranteeing Public Work. Special Assessments. Municipal Accounts and Uniform Accounting. Municipal Ownership. Quasi-Public Corporations and Their Control.

ORDER OF

Municipal Journal and Engineer, FLATIRON BLDG., NEW YORK



JUST PUBLISHED  
**ENGINEERING WORK**  
 IN TOWNS AND SMALL CITIES

BY  
 ERNEST McCULLOUGH

Contains the results of 20 years' experience in municipal work; over 50 pages of valuable tables, diagrams, formulas, etc.; 400 pages, handsomely bound in cloth. Partial list of contents is as follows:  
 ROADS AND STREETS—General Discussion—Paved Roadways—Grades—Grade Ordinances—Pipe Laying Regulations  
 SANITATION—Dangers of Filth—Bacterial Action—Garbage Disposal—Street Cleaning—Definition of Terms.  
 DRAINAGE—Gutters—Flumes—Pipes—Inlets and Catch Basins—Materials for Drains and Sewers.

PRICE, \$3.00, POSTPAID.

Municipal Journal and Engineer  
 FLATIRON BUILDING, NEW YORK



## LEADITE

THE BEST PIPE JOINTING MATERIAL  
 FOR WATER AND GAS MAINS, ETC.

NO CAULKING REQUIRED. COST LESS THAN ONE-THIRD THE COST OF LEAD. ONE TON WILL DO MORE WORK THAN FIVE TONS OF LEAD. JOINTS WILL NEVER LEAK. IN USE 11-12 YEARS IN PHILADELPHIA, PA. NOW ADOPTED BY WATER DEPARTMENT. IN USE IN MANY CITIES.

WRITE FOR PAMPHLET, PRICES, ETC.

THE LEADITE COMPANY OF AMERICA  
 642 HEED BUILDING, PHILADELPHIA



## STAR ELECTRIC COMPANY

MANUFACTURERS OF

### Fire Alarm Telegraph Apparatus and Systems

THAT ARE RELIABLE AND STRICTLY UP-TO-DATE

Write and let us tell you how your RUNNING EXPENSES  
 can be REDUCED and YOUR SYSTEM IMPROVED.

Factory and Offices at

BINGHAMTON, N. Y.

## "High Grade Natural Asphalts"

FOR

*Paving & Roofing Purposes*

EXCEL THE  
 ARTIFICIAL

UNAFFECTED  
 BY WATER

As Shown in Actual Use

Wears Longer than  
 Man-Made Asphalts and Coal Tar

THE

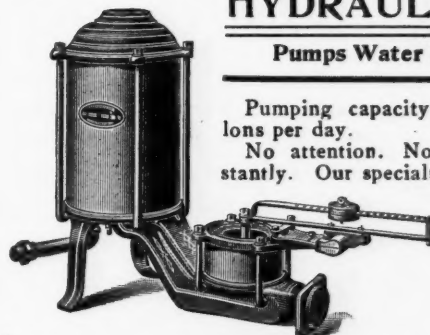
**A. L. Barber**

ASPHALT COMPANY

17 Battery Place . . . NEW YORK

## RIFE'S AUTOMATIC HYDRAULIC RAM

Pumps Water by Water Power



Pumping capacity up to 1,000,000 gallons per day.

No attention. No expense. Runs constantly. Our specialty: Equipping plants for towns and institutions.

Operates under 18 inches to 50 feet fall. Elevates 30 to 1 up to 500 feet elevation. 5,000 in use. Catalogs and estimates free.

RIFE PUMPING ENGINE CO., 111 1/2 Broadway, New York City

## CREOSOTED WOOD PAVING BLOCKS

are being largely used in New York, where conditions require the best paving material made. Ours is the most complete plant in existence for producing it. Daily capacity 3,000 square yards; a coal tar distilling plant for producing and redistilling creosote oil, an oil-storage tank of 500,000 gallons capacity. Let us quote prices f. o. b. any point upon Fir, Tamarac, Norway or Southern Pine Blocks. Every block is thoroughly permeated with rich creosote oil.

KETTLE RIVER QUARRIES CO.

Minneapolis, Minn.

# A MODEL SYSTEM of STREET LIGHTING

It is the result of using the mantle gas or naphtha lamp in connection with the electric arc. Street lighting experts agree upon this statement:

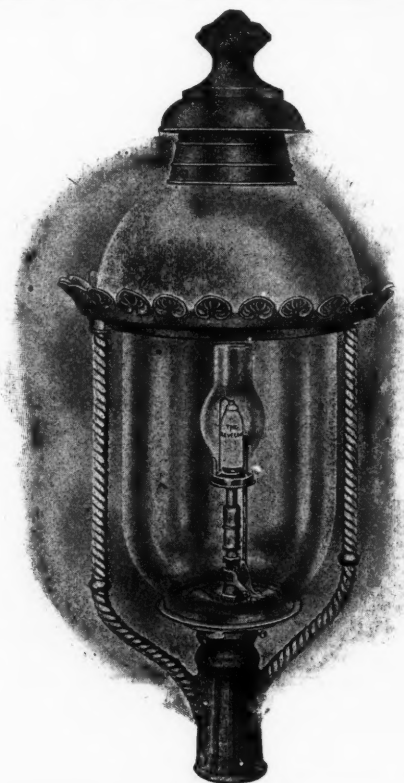
## Why the Mantle Lamp is Preferable

It affords a better distribution of light.  
It lights shaded streets perfectly.  
It is the most economical any city can adopt.



## THE CLEVELAND SYSTEM IS SUCCESSFUL

indicated by our being again awarded the contract with the City of St. Paul for 6,500 lamps. Minneapolis awarded us a contract for 3,500 lamps because of the success of our St. Paul contract. Pittsburg has contracted with us for 4,000 lamps. Some of the other cities using our lamps are Boston, Charleston, Memphis, Muscatine, Ia., Lincoln, Neb., Madison, Wis.



Our Boulevard Gasoline Lamp makes it possible to obtain the same results as from the gas lamp where gas mains do not extend. We will guarantee any town or city a big saving in its lighting bills and a service that cannot be equaled. *Write us for particulars*

# CLEVELAND STREET LIGHTING CO.

CLEVELAND, OHIO

MINNEAPOLIS, 523 N. Y. Life Bldg.

NEWPORT, R. I.

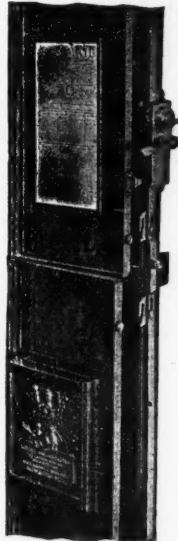
ST. PAUL, 370 Jackson St.

New York, 1 Broadway



## THE CUTLER MAILING SYSTEM AFFORDS INVALUABLE MAIL SERVICE FOR PUBLIC BUILDINGS

IN USE IN MUNICIPAL, COUNTY, STATE AND FEDERAL BUILDINGS THROUGHOUT THE COUNTRY, BEING EXPLICITLY AUTHORIZED BY THE POST OFFICE DEPARTMENT UNDER PROVISION OF A SPECIAL ACT OF CONGRESS. AS A PART OF THE POSTAL SYSTEM IT IS AVAILABLE FOR THE SERVICE OF SUCH PAPERS AS MAY BE LEGALLY SERVED THROUGH THE MAIL.



MODEL C, OPEN

WHERE THE STANDARD AUTHORIZED MAIL CHUTE EQUIPMENT IS DESIRED, THE CUTLER MAILING SYSTEM SHOULD BE SPECIFIED BY NAME.

DESIGNATE "MODEL C" IF THE VERY LATEST AND BEST FORM AS ILLUSTRATED HERewith IS REQUIRED. INTERIOR UNDER GOVERNMENT LOCK BUT INSTANTLY ACCESSIBLE TO AUTHORIZED PERSONS.

INSTALLED IN CONNECTION WITH THE U. S. FREE COLLECTION SERVICE ONLY BY THE SOLE MAKERS AND PATENTEES.

THE CUTLER MANUFACTURING CO.  
GENERAL OFFICES, CUTLER BUILDINGS, ROCHESTER, N. Y.

## STEEL EQUIPMENT FOR A PUBLIC OFFICE

This combination stack we built to order for a large Western corporation. It contains document files, roller shelving, check files, cash drawer and private lockers.

We are building such cases to order right along for municipal offices. Special devices provided for any purpose. Submission drawings and estimate furnished on receipt of specifications.

We make filing cabinets for correspondence, documents, card indexes and records. Our new catalogue illustrates them in detail. Ask for it.

Our representative will call upon you if you are interested in the purchase of steel equipment. Let us demonstrate how you can simplify and protect your office records.

State capacity of cases you require, when writing, and nature of records, and we will give your inquiry courteous attention.

Mention this Magazine



The Berger Manufacturing Co.  
CANTON, OHIO

FOR  
**SIDEWALKS AND CURBS**  
SPECIFY  
**"NAZARETH"**  
CHARLES WARNER CO.  
WILMINGTON, DEL.  
LAND TITLE BLDG. - PHILADELPHIA

## Auger Brick Machinery

FOR

## STREET PAVERS

## Clay Preparing Machines

Send for Catalogue No. 20

Chambers Brothers Co.

Fifty-second and Media Sts.

PHILADELPHIA, PA

**FABRIC FIRE HOSE CO.**

Cor. Duane and Church Sts., New York

150 Lake Street  
Chicago431 Equitable Building  
Atlanta218 Chestnut Street  
St. Louis366 Fountain Street  
Providence1101 Brunson Block  
Columbus, O.

1st Ave., Cor. 2nd St., Denver

45 N. 5th St., Portland, Ore.

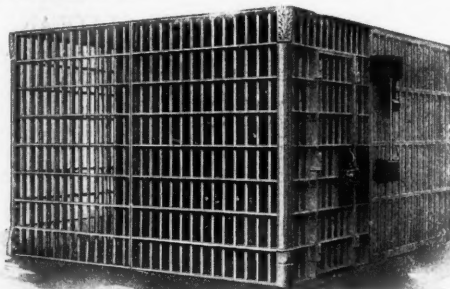
605 Mission St., San Francisco

405 Robinson Bldg., Elmira, N. Y.

Canadian Rubber Co., Montreal  
Sole Agents for CanadaPatentees and Sole Manufacturers Wax  
and Para Gum Treated Fire Hose**The Van Dorn Iron Works Co.**

MANUFACTURERS OF

Burglar Proof Prison Cells, Jail and Lock-up Cages, Steel Calabooses, Steel Joist Hangers, Wrought Iron Fencing, Steel Structures, Steel Cranes and Conveyors, Burglar Proof Gratings, Iron Railings, Metallic Furniture, Steel Document Cases and Files, Roller Book Shelves, Steel Lockers, Steel Desks, Wrought Grill Work, Steel Drying and Bread Trucks, Window Gratings, Vault Doors, Folding and Expansion Gates, Lawn Seats, Stable Appliances, Elevator Fronts, Wire and Office Railing, Fire Proof Shutters.

EXPOSITION JAIL CAGE OF TWO CELLS AND CORRIDOR  
CLEVELAND, OHIO

The MUNICIPAL JOURNAL AND ENGINEER is putting out a weekly number which supplies the latest news regarding water plants, paving, sewerage, lighting, fire and police service, and all other municipal utilities.

This is the best epitome of information on these subjects obtainable.—Oakland (Cal.) Enquirer.

**ACROSS THE BRIDGE AT MIDNIGHT**

Or any other time of the night, you will find the FORT WAYNE ARC LAMPS faithfully performing their duty on

**THE EAD'S BRIDGE, ST. LOUIS**

You know that's in Missouri. They said "Show Us," so we did. There's a reason why those Lamps are still there—showing those Missourians RELIABILITY, that's why.

**Fort Wayne Electric Works, "Wood" Systems Fort Wayne, Ind.**



# THE East Ohio Sewer Pipe Co.

SEWER PIPE,  
FLUE LININGS  
—AND OTHER—  
CLAY PRODUCTS

Annual Capacity,  
5,000 Carloads

Irondale, Ohio

## The Buckeye Fire Clay Co.

Uhrichsville, O.



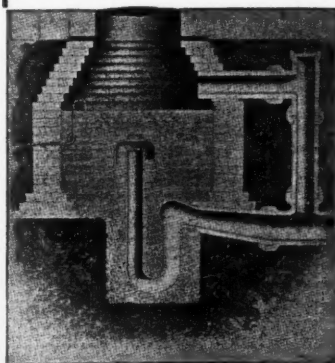
—MANUFACTURERS OF—  
SEWER PIPE  
FLUE LININGS  
WALL COPING  
Etc.

Double Strength  
Pipe a Specialty

## MILLER AUTOMATIC SIPHON

FOR

### INTERMITTENT FLUSH TANKS



For Flushing Street Sewers  
and for Sub-Soil Irrigation.

No Moving Parts. No Valves.  
No Small Tubes to Clog or  
Choke. Nothing Whatever  
to Get Out of Order.

Pacific Flush Tank Co.

The Temple, 181 LaSalle St.  
CHICAGO

Eastern Agency, 42 Broadway, New York



C. M. STRATTON UNDER ONE MANAGEMENT H. E. STRATTON

THE STRATTON FIRE CLAY CO.  
The Ohio River Sewer Pipe Co.  
The Great Northern Sewer Pipe Co.

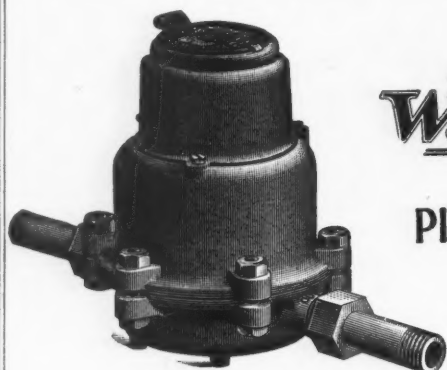
MANUFACTURERS OF

HIGH-GRADE SEWER PIPE

EMPIRE, OHIO

The Largest and Best Equipped Plants in the World

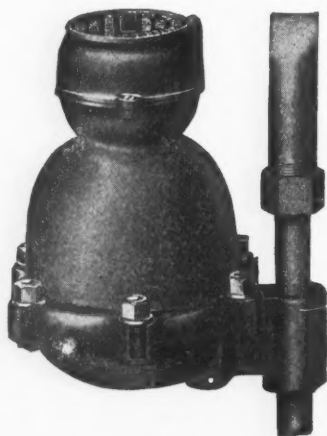
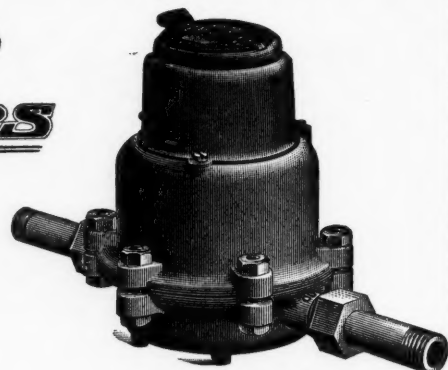
NOT IDENTIFIED WITH ANY TRUST



## *Keystone Water Meters*

PITTSBURGH METER CO.

EAST PITTSBURGH, PA.,  
U. S. A.



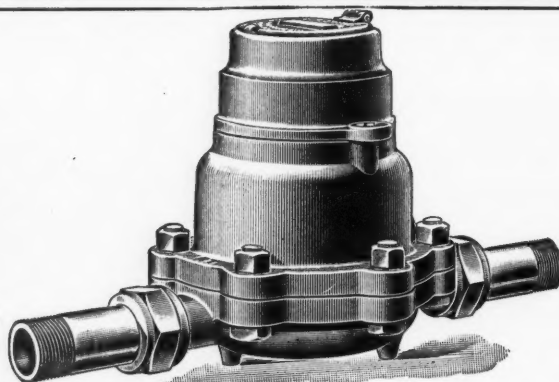
WHAT YOU HAVE BEEN LOOKING FOR

## THE KING VERTICAL

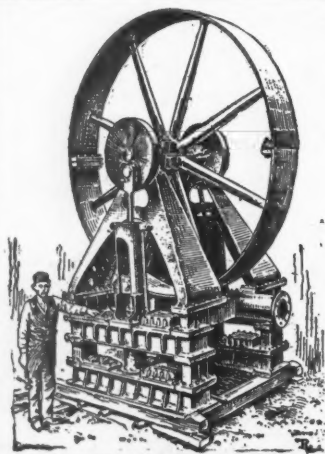
A Disk Meter for UPRIGHT SERVICE PIPES  
which affords the simplest, most economical and  
convenient meter setting for modern plumbing.

UNION WATER METER COMPANY

WORCESTER, MASS.



Accurate WATER METERS Durable  
BUFFALO METER CO., Buffalo, N. Y.  
ESTABLISHED IN 1892



## Water Supply at Lower Pumping Cost

BY USING THE BETHLEHEM POWER PUMP

100,000 to 3,000,000 gallons daily capacity. Specially  
designed to meet the needs of water work plants in smaller muni-  
cipalities. Send for a copy of our booklet. Questions relative  
to special conditions or service receive careful attention.

Bethlehem Foundry & Machine Co., So. Bethlehem, Pa.

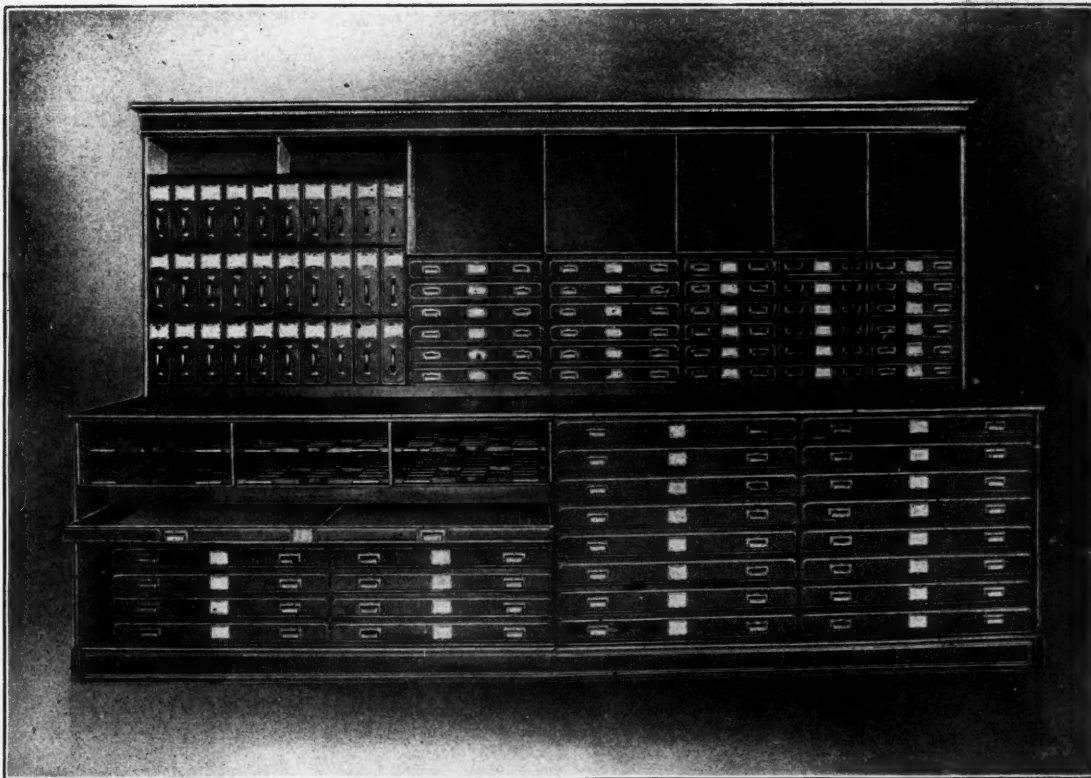
Watch for illustrated article on installation of Bethlehem Pump at  
Stapleton, S. I., in an early issue of Municipal Journal and Engineer.



# STEEL FILING DEVICES

For Valuable Documents, Plans, Deeds,  
Maps, Drawings, Etc.

FOR PUBLIC BUILDINGS  
AND GENERAL FILE ROOMS



CITY ENGINEER'S OFFICE, MINNEAPOLIS, MINN.

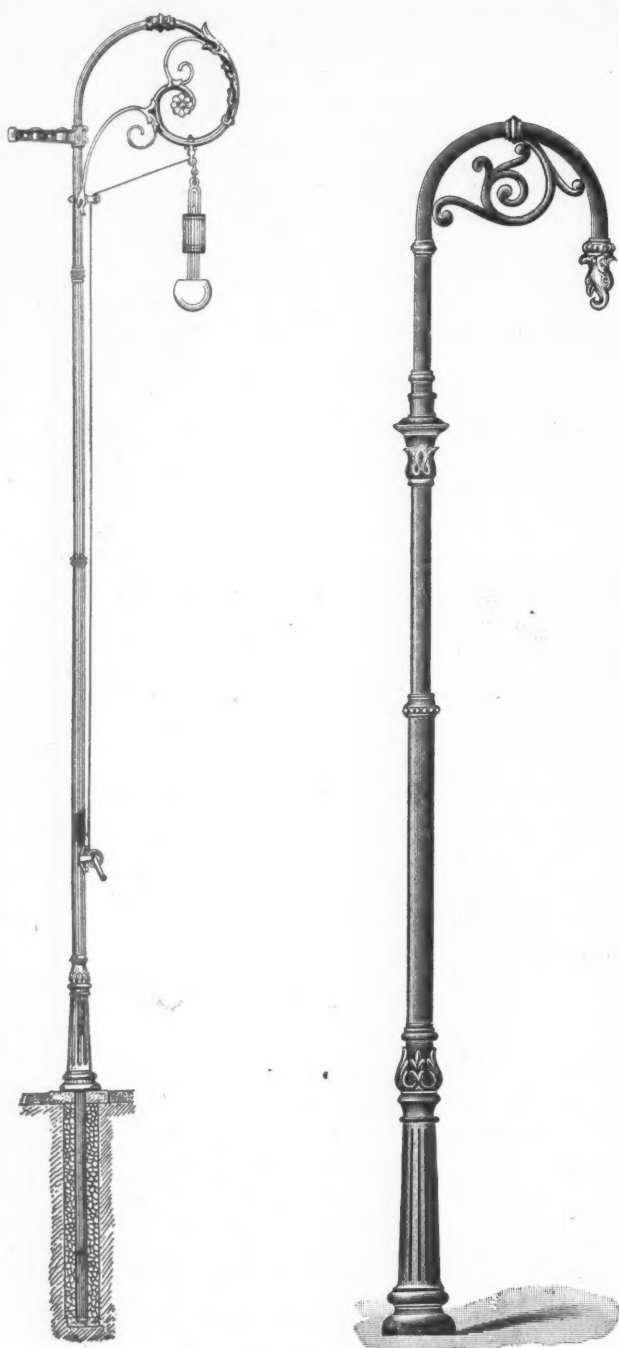
We make a specialty of designing and building **Steel Filing Devices** of every character for the safe storage of drawings, maps, plats and plans. The great value of the various plans and maps accompanying registered records and those illustrating City and State surveys, is inestimable and in many instances impossible of duplication. "**Safe Filing**" therefore, is most important.

Write for our special publication No 1533 detailing our product, also let us tell you of a remarkable fire test made at Kansas City and which demonstrated absolute protection afforded by a Case built of sheet steel.

## ART METAL CONSTRUCTION CO.

JAMESTOWN, N. Y.

P. O. BOX 87



Ornamental and plain Poles and Brackets for  
Arc and Incandescent Lighting

**75 Types**

INQUIRIES SOLICITED  
FOR SPECIAL DESIGNS

**Electric Railway Equipment Co.**

MANUFACTURERS

1942 W. Eighth St.

Cincinnati, Ohio

**INDEX TO ADVERTISEMENTS.**  
**For Buyers' Guide and Classified Business Directory, See Pages 34 and 36.**

Abendroth & Root Mfg. Co.....	34	Keasbey Co., Robt. A.....	11
Alvord, John W.....	37	Kelly-Springfield Road Roller Co.....	12
American Dittler Sewage Disposal Co.....	37	Kettle River Quarries Co.....	13
American Hydraulic Stone Co.....	34	Knudson, A. A.....	37
American Street Sign Co.....	11	Koyl, C. Herschel.....	37
American Well Works.....	8	Kuichling, Emil.....	37
Artesian Well & Supply Co.....	8	Lawrence Machine Co.....	38
Austin-Western Co.....	41	Leadite Co.....	13
Art Metal Construction Co.....	35	Lederle Laboratories.....	37
Baltimore Enamel & Novelty Co.....	11	Leonard, C. E.....	37
Bandy & Terrell.....	37	Lewis & Kitchen.....	37
Barber Asphalt Co., A. L.....	13	Loomis Company.....	579
Barr Clay Co.....	44	Lynchburg Foundry Co.....	9
Barrett Mfg. Co.....	7	Marks, William D.....	38
Berger Mfg. Co.....	15	Maslins.....	10
Bessemer Limestone Co.....	45	McAvoy Vitrified Brick Co.....	44
Bethlehem Fdy. & Mach. Co.....	18	McWane Pipe Works.....	9
Brossman & King.....	37	McDargh, Harry J.....	37
Buckeye Fire Clay Co.....	17	Metropolitan Paving Brick Co.....	45
Buffalo Meter Co.....	18	Michigan Wagon & Mfg. Co.....	39
Buffalo Steam Roller Co.....	12	Morse, W. F.....	37
Caird, Jas. M.....	37	Nazareth Cement Co.....	15
California Asphaltum Sales Agency.....	6, 11	Neptune Meter Co.....	50
Carson Trench Mach. Co.....	10	Newhall, Jno. B.....	38
Central Foundry Co.....	10	New York Purchasing Agency.....	34
Century Light & Power Co.....	34	New York Lead Wool Co.....	583
Chambers Bros.....	15	New York Sewage & Disposal Co.....	38
Child, Stephen.....	37	Northern Pacific Railway.....	8
City Wastes Disposal Co.....	37	Okonite Co., Ltd.....	50
Clearfield Clay Working Co.....	44	Pacific Flush Tank Co.....	17
Cleveland Street Lighting Co.....	14	Pittsburg Meter Co.....	18
Climax Road Machine Co.....	12	Potter, Alexander.....	38
Clinton Paving Brick Co.....	44	Purinton Paving Brick Co.....	45
Coldwell-Wilcox Co.....	9	Reinforced Concrete Pipe Co.....	3
Collinwood Shale Brick Co.....	44	Rife Pumping Engine Co.....	13
Columbia Trust Co.....	583	Rosewater, Andrew.....	33
Conard, W. R.....	37	Safety Meter Lock Co.....	9
Cottingham, Chas., C. E.....	37	Sanitary Street Flushing Machine Co.....	2
Cutler Mfg. Co.....	15	Schott, W. H.....	38
Daus, Felix H. A., Duplicator Co.....	10	Seagrave Co., The.....	4
Davison Foundry Co.....	10	Senderling Mfg. Co. The.....	48
Dow, A. W.....	37	Shields, W. S.....	9, 38
Duluth Engineering Co.....	37	Snow & Barbour.....	38
East Ohio Sewer Pipe Co.....	17	Soltmann, E. G.....	9
Electric Railway Equipment Co.....	38	Southern Railway.....	10
Ellis Co., The.....	38	Sparks, Jno. C.....	38
Ellis-Ford Co., The.....	8	Star Electric Co.....	13
Erie Machine Shops.....	12	Stratton Fire Clay Co.....	17
Eureka Fire Hose Co.....	34	Studebaker Bros. Mfg. Co.....	41
Everett Mfg. Co.....	5	Suburban Brick Co.....	44
Fabric Fire Hose Co.....	16	Suspended Concrete Mixer Co., The.....	34
Fanning, J. T.....	37	Swinburne & Clark.....	38
Federal Clay Products Co.....	44	Texas & Pacific Coal Co.....	45
Firestone Tire & Rubber Co.....	4	Thomson Meter Co.....	6
Flint Brick & Coal Co.....	11	Thornton Fire & Vitrified Paving Brick Co.....	44
Polwell, A. Prescott.....	37	Tiffin Wagon Co.....	40
Ford, Owen.....	37	Troy Wagon Works Co.....	39
Fort Wayne Electric Works.....	16	Union Water Meter Co.....	18
Fulton & Walker Co.....	10	United Brick Co.....	46
Glen Mfg. Co., Henry M.....	4	U. S. Wood Preserving Co.....	48
Globe Asphalt Co.....	6	Van Dorn Iron Works.....	16
Godeffroy, R.....	37	Wadsworth Stone & Paving Co.....	46
Hassam Paving Co.....	50	Warner, Chas. Co.....	15
Haywood Wagon Co.....	11	Warren Bros. Co.....	49
Hersey Mfg. Co.....	50	Washington Pipe & Fdy. Co.....	9
Hering, Rudolph & Geo. W. Fuller.....	37	Wassall Clay Co.....	44
Hetherington & Berner.....	46	Watson Wagon Co.....	40
Howard, J. W.....	37	Williams, Proctor & Potts.....	38
Hudson Eng'g & Cont'g Co.....	37	Wise & Watson.....	38
International Association of Municipal Electricians.....	8	Woodward, Roland, C. E.....	38
Jewell, Wm. M.....	37		



# Directory of Consulting Engineers, Engaged in Municipal and Public Work

## ALVORD, JOHN W.

CONSULTING ENGINEER  
1207 HARTFORD BUILDING - CHICAGO  
M. Am. Soc. C. E. Hydraulic and Sanitation Works, Water Supplies, Water Power, Sewerage, Sewage Disposal.

## American Dittler

### Sewage Disposal Co.

Consulting and Contracting  
ENGINEERS  
1123 Broadway New York

W. H. SCLADITZ, Mechanical and Sanitary Engineer, Manager.

Dittler System of Sewage Disposal and Purification. Numerous plants (over 250) in successful operation throughout the civilized world.

## Bandy & Terrell

Consulting, Civil, Hydraulic and Sanitary Eng'rs, Room 311, City Nat'l B'k Bld. Greensboro, N.C.  
J. M. Bandy, Am. Ph.B., Assoc. Member A. S. C. E.; W. H. Terrell.

## BROSSMAN & KING

CONSULTING ENGINEERS

619-622 LEMCKE BUILDING  
INDIANAPOLIS

Water Supply, Filtration Systems, Sewerage and Sewage Disposal.

## CAIRD, JAMES M., Assoc. Am. Soc. C. E.

CHEMIST AND BACTERIOLOGIST

Office and Laboratory:  
271 RIVER STREET - TROY, N. Y.  
Water Analysis and Tests of Filter Plants.

## CHILD, STEPHEN

Landscape Architect and Consulting Engineer  
Rooms 511-12-13 Ford Building  
15 ASHBURTON PLACE, BOSTON, MASS.  
S. B. Massachusetts Institute of Technology, 1888. Member American Society of Civil Engineers. Telephone connection. Correspondence solicited.

## City-wastes Disposal Co.

156 FIFTH AVENUE, NEW YORK  
(Organized from the staff of the late Col. George E. Waring, Jr.)

Consulting and Contracting in Sewerage, Sewage Disposal, Garbage and Refuse Disposal and Street Cleaning.

## CONARD, W. R.

INSPECTOR OF IRON CASTINGS  
1004 High Street - Burlington, N. J.  
Including: Building, Bridge and Sewer Castings, Valves and Hydrants. Specialty: Water and Gas Pipe and Specials for same.

## Cottingham, Charles, B.C.E., C.E.

Civil and Consulting Engineer, Danville, Ill.  
Water Works Purification, Sewerage, Sewage Disposal, Street Pavements, Electric Lighting, Topographical Surveys, Grade Systems. Plans, Specifications. Estimates, Superintendence.

## DOW, A. W., Ph.B.

CHEMICAL ENGINEER  
Consulting—Inspecting—Testing  
Specialties—Asphalts, Bitumens, Paving, Tarring and Oiling Roads, Paving Materials, Hydraulic Cements, Water-proofing  
NEW YORK CITY: WASHINGTON, D. C.:  
120 East 23d Street, 725 Bond Building  
Phone, 3351 Gramercy Phone, Main 2533 Y

## The Duluth Engineering Co.

613 Palladio Building - Duluth, Minn.  
Established 1883. T. F. McGilvray, M. Am. Soc. C. E., M. Am. W. W. Assoc.; W. B. Patton, C. E., Consulting Engineer, Ex-City Engineer, Duluth.  
Water Powers, Water Works, Sewerage, Bridges, Railroads, Electric Railways, Conduits, Paving and Road Making, Lighting and Power Plants, and Mechanical Installations of all kinds.

## FANNING, J. T.

CONSULTING ENGINEER  
330 Hennepin Avenue - Minneapolis, Minn.  
Mem. Am. Soc. C. E.  
Plans for Public Water Supplies, Steam and Hydraulic Powers and Electric Power Transmissions.

## FORD, OWEN

CONSULTING ENGINEER  
710 Security Building, - St. Louis, Mo.  
Twenty-one years' practice—150 installations, Water Works, Light, Power and Railway Plants, Sewerage, Valuations, Reports, Estimates, General Engineering Work.

## FRENCH & RUSSELL

Moffat Building, Detroit, Mich.  
CIVIL AND CONSULTING ENGINEERS  
Specialties: Water Supply Paving, Sewage Disposal, and Concrete Construction

## GODEFFROY, R.

CIVIL AND CONSULTING ENGINEER  
CITIZENS' TRUST BUILDING  
Paterson, N. J.  
Civil and Municipal Engineering, Standard and Fireproof Mill Construction, Disposal and Purification of Sewage and Factory Waste  
CONSULTING ENGINEER FOR THE  
American Dittler Sewage Disposal Co.,  
New York

## HERING, RUDOLPH, and FULLER, GEORGE W.

HYDRAULIC ENGINEERS  
and SANITARY EXPERTS  
170 BROADWAY, NEW YORK  
Water Supply, Water Purification, Water Power, Sewerage and Sewage Disposal. Examinations of Projects, Plans, Specifications and Estimates of Cost.  
Construction Superintendent.

## HOWARD, J. W., C.E.E., M.

PAVING EXPERT AND  
TESTING LABORATORY  
Write for terms, etc.  
1 BROADWAY NEW YORK

## Hudson Engineering and Contracting Co.

92 WILLIAM STREET NEW YORK  
Branch Office  
518 WALNUT STREET, CINCINNATI, OHIO

Bacon Patent Simple and Compound Air Lift Systems for Pumping from Wells and Surface Sources.  
Water Works and Artesian Well Systems Designed and Installed.

## International Association

OF MUNICIPAL ELECTRICIANS  
Represents the Electrical Depts. of American and Canadian Cities. FRANK P. FOSTER, Sec'y  
Corning, N. Y.

## JEWELL, WM. M.

CHEMICAL, HYDRAULIC  
and SANITARY ENGINEER  
Expert in Water Purification

CABLE BUILDING CHICAGO, ILL.

## Knudson, Adolphus A.

Electrical Engineer  
Surveys for Electrolysis upon piping systems  
Room 419, 34 Nassau Street, New York

## Koyl, C. Herschel,

Late Fellow Johns Hopkins University  
Specialty: Water Softening for Cities, Towns, Villages  
18 BROADWAY, NEW YORK

## Kuichling, Emil, C. E. Consulting Engineer

52 Broadway, N. Y. Member of Am. S. C. E.  
Plans for Public Water Supplies, Steam and Hydraulic Powers and Electric Power Transmission.

## Lederle Laboratories

518 FIFTH AVENUE - NEW YORK  
F. D. BELL, ERNST J. LEDERLE, Ph.D., D.Sc. J. A. DEGHUE, Ph.D.  
Sanitary, Chemical and Bacteriological Examinations. Control of Water Supplies. Disposal of Refuse and Garbage.

## LEONARD, C. E.,

CITY ENGINEER  
Austin, Texas

## LEWIS & KITCHEN

ENGINEERS AND CONTRACTORS

For the Designing and Construction of Septic Tanks Garbage Crematories, Sewage Disposal Works.

ADDRESS

901 Broadway, Kansas City, Mo.  
433 Wabash Avenue, Chicago, Ill.

## Marks, William D., Ph. B., C. E.

Consulting Engineer and Statistician.  
Gas Works, Electric Light Works, Electric Railways, Oil Motor Cars  
218 Bourse, Phila., Pa. 720 Park Row Bldg. New York City

## Directory of Consulting Engineers, Engaged in Municipal and Public Work

**McDARGH HARRY J.**  
 Assoc. M. Am. Soc. C. E.  
 CONSULTING ENGINEER Maintenance Engineer  
 Department of Water and Sewers Dayton, Ohio

**MORSE, WILLIAM F.**  
 CONSULTING SANITARY ENGINEER  
 18 BROADWAY (Welles Building) NEW YORK  
 The Disposal of Municipal, Institutional and Trade Waste. The Utilization of Municipal Refuse. The Production of Steam Power from City Waste.

**Newhall, John B.,** M. Am. Soc. M. E.  
 HYDRAULIC ENGINEER  
 114-116 LIBERTY STREET - NEW YORK  
 Telephone, 6259 Cortlandt  
 Specializing: Underground Water Supply. Plans for Driven Well Plants. Examinations and Reports.

**Potter, Alexander,** 143 Liberty St.  
 CIVIL AND SANITARY ENGINEER  
 Specialties:  
 Water Supply, Sewerage and Pavements

**Rosewater, Andrew,**  
 Mem. Am. Soc. C. E.  
 Consulting and Designing Engineer  
 Sewerage, Water Works and other Municipal Works, Omaha Neb.

### SEWAGE DISPOSAL

Write for Information.

New York Sewage Disposal Co.  
 1 Madison Ave., N. Y.

### SCHOTT, W. H.

ENGINEER  
 1102 AM. TRUST BLDG. - CHICAGO  
 Designer and Builder Central Station Heating, Gas, Electric Light and Power Plants. Street Railways Financed and Built Complete.

### SHIELDS, W. S.

CIVIL AND SANITARY ENGINEER  
 1715 MARQUETTE BUILDING, CHICAGO, ILL.  
 Water Works, Water Supplies, Street Pavements, Sewerage Systems, Sewage Purification Plants.

### SNOW & BARBOUR

CIVIL AND SANITARY ENGINEERS  
 TREMONT BUILDING - BOSTON, MASS.  
 85 NORTH HIGH ST. - COLUMBUS, OHIO  
 Special attention to water supply from a Sanitary standpoint, and to disposal of Sewage. Mechanical analyses of sands.

The Municipal Journal and Engineer should be always on your library table as a constant current reference to all Municipal work.

### SPARKS, JOHN C.

B. Sc., F. C. S.  
 CONSULTING AND ANALYTICAL CHEMIST AND WATER EXPERT  
 Chemical, Bacteriological and Sanitary Analyses of Water for drinking and other purposes.  
 OFFICE AND LABORATORIES:  
 16 BEAVER STREET NEW YORK CITY

**Swinburne & Clark,** 156 Fifth Ave.  
 CIVIL ENGINEERS. Sewerage and Sewage Disposal.  
 G. W. Swinburne, M. Am. Soc. C. E.;  
 E. C. Clark, Assoc. M. Am. Soc. C. E.

### Williams, Proctor & Potts,

Incorporated  
 ASSOC. MEMBERS AM. SOC. C. E.  
 CIVIL AND SANITARY ENGINEERS  
 Sewers, Water Works, Sewage Disposal, Water Purification.  
 Design and Superintendence  
 17 BATTERY PLACE - NEW YORK CITY

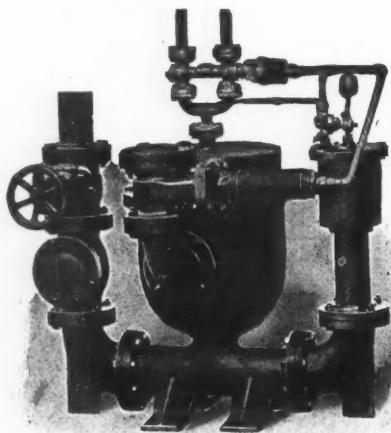
### WISE & WATSON

CIVIL AND CONSULTING ENGINEERS  
 Passaic National Bank Building  
 Passaic - New Jersey  
 Colin R. Wise, City Surveyor of Passaic, N. J.  
 Robert M. Watson  
 Borough Engineer of Rutherford, N. J.

### Woodward, Roland, C. E.

CONSULTING ENGINEER  
 Realty Building, corner Newman and Forsyth Sts.  
 JACKSONVILLE, FLA.

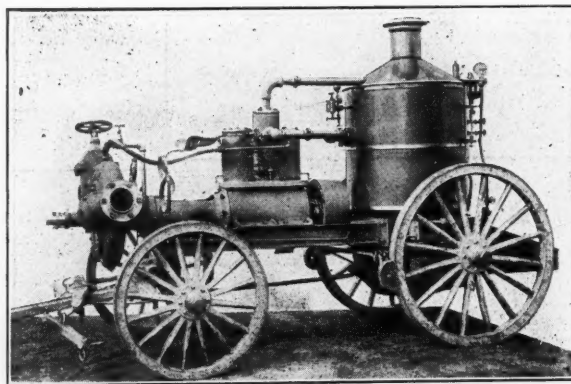
## ELLIS Automatic Ejectors



Specially Designed for the Ejection of Sewage, Water, Chemicals, Semi-Solids of Every Description.  
 Send for Catalogue.

**THE ELLIS COMPANY**  
 216 West 23d Street - New York

## Lawrence Portable Centrifugal PUMPING ENGINE FOR SEWER AND STREET DEPARTMENTS



It is unequaled for pumping out cellars and basements after fires and for pumping out excavations, because it can be moved along as work progresses. Will do the work in from one-eighth to one-quarter the time required by fire engines, and saves those expensive machines from injury by foreign matter. Built in 3 sizes—300 to 1000 gallons per minute.

Let us send you detailed description.

**LAWRENCE MACHINE COMPANY**

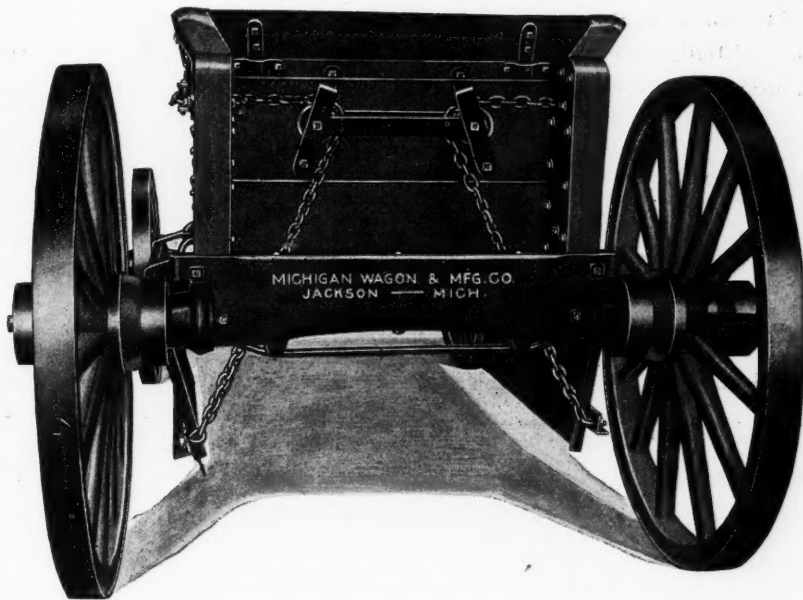
LAWRENCE, MASS.

Builders also of

Centrifugal Pumps for all other purposes



# Michigan Dump Wagon



FLANGED STEEL DOORS OVERLAPPING IN THE CENTER, REINFORCED BACK, STEEL HINGES, HARD-WOOD BOXES, 12 INCH SPINDLES, STEEL OR WOOD AXLES ARE SOME OF THE GOOD POINTS.

WRITE FOR CATALOG  
GIVING ALL DETAILS

## MICHIGAN WAGON & MFG. CO.

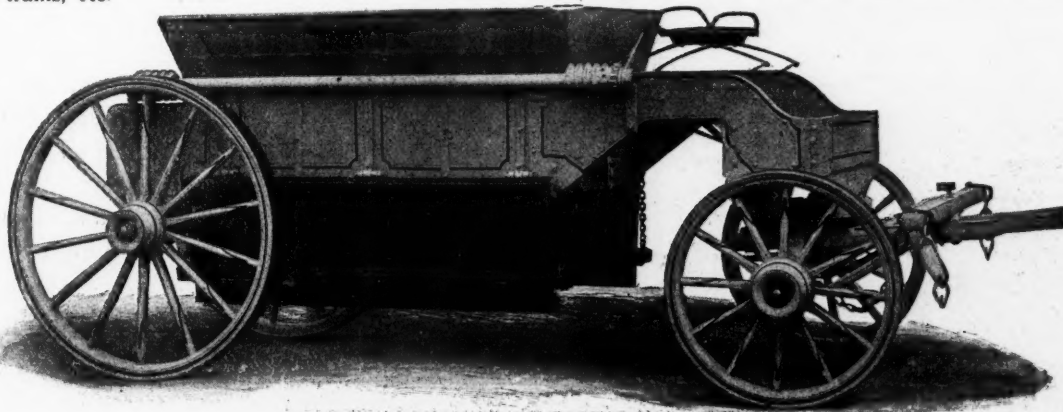
NEW YORK OFFICE  
27 William Street

JACKSON, MICH.

St. Louis Agents  
FINLEY-GEORGE  
Chemical Building

## Advantages of Dump Wagons for Steam Shovel Work

Few contractors realize that bottom dump wagons can frequently be used to greater advantage than dump cars on steam shovel work. We do not claim that under all conditions dump wagons are better than cars, but do wish to call attention to the economic value of dump wagons under certain conditions. First, no tracks are required with dump wagons, thus saving the cost of laying and shifting tracks and the cost of building temporary trestles. On short hauls, and particularly where the shovel and tracks must be moved frequently from cut to cut, this advantage of dump wagons over cars often amounts to several cents per cubic yard. Second, no dump crew is required with dump wagons, and, by using a "road machine," the earth can be spread very cheaply after dumping from wagons, if careful spreading is required, as in building reservoir embankments. Dump cars and tracks are at a tremendous disadvantage wherever the earth must be spread in horizontal layers. Third, the daily output of a steam shovel can be greatly increased where dump wagons are used, because there is no time lost waiting for trains, etc.



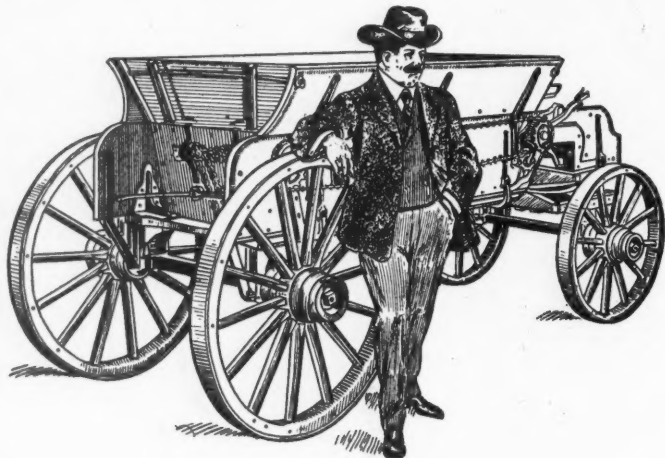
TROY

We have known cases where a small steam shovel was turning out only 500 cubic yards a day loading into cars, and, when Troy Dump Wagons were substituted, the output jumped up to 1,000 cubic yards per day. The actual cost of hauling in the Troy Wagons was greater than in the cars, but when the saving in dumpmen's wages, track laying and shifting, and lower wages of shovel crew per cubic yard (due to the increased output) were considered, the Troy Wagons were far cheaper as a means of transporting the earth. Troy Wagons are built to stand the severe service that occurs in loading from a steam shovel. The steel bottom doors of a Troy Wagon are practically indestructible, and, in addition, are always perfectly sealed against leakage when closed. Send for Catalog No. 2M.J. for complete description of our wagons.

## TROY WAGON WORKS CO., Mulberry and Race Streets, Troy, Ohio

## THE REAL TEST OF A DUMPING WAGON

The strong man is not the one who meets just one crisis and triumphs over it—it's the man who meets all troubles day by day. The test of a dumping wagon is not what one of that type may do, but what a number of them will do without breakdowns, day after day and job after job—in short, its general record for freedom from repairs.



**BY THAT TEST, WHENEVER  
APPLIED,  
THE WATSON WINS**

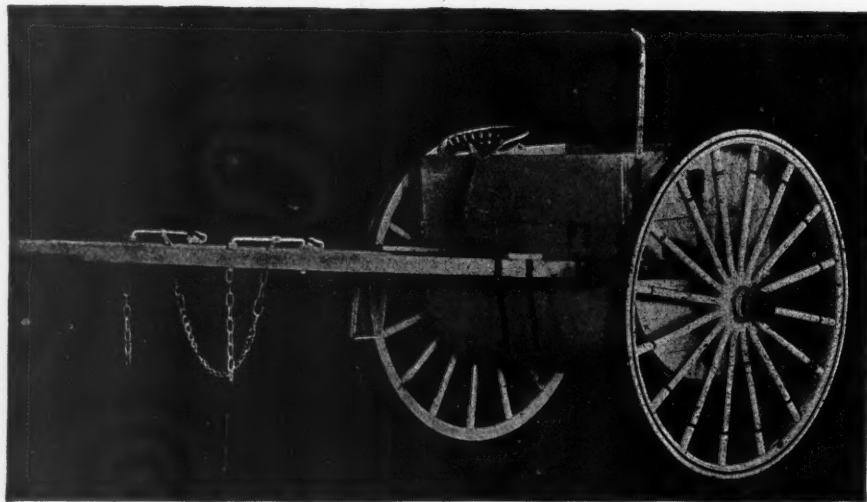
Given an equal number of each make of wagon on a job, the Watsons' will be found least frequently "in the shop." This is not our claim, but the testimony of men who have used the wagons side by side in average, strenuous contract work.

Do you want proof?

**WATSON WAGON CO.,**

**Cor. Buck and Center Sts.,  
CANASTOTA, N. Y.**

## TIFFIN DUMP CARTS



LARGE CITY GARBAGE CART

These carts have created a "panic" among cities using "old fashioned Carts." Tiffin Carts have no rivals for Street Cleaning, hauling Garbage, Ashes, Stone, Sand, or for any uses. They are a *revelation in Economy and Labor Saving*. Indorsed by everyone using them. Splendidly built. Strong, durable and light draught. Made in different sizes. Strongest references of many large cities now using them.

Prices, Terms and Booklets on Application.

**SECURE AN AGENCY WHILE YOU MAY**

**The Tiffin Wagon Co., Tiffin, Ohio, U. S. A.**

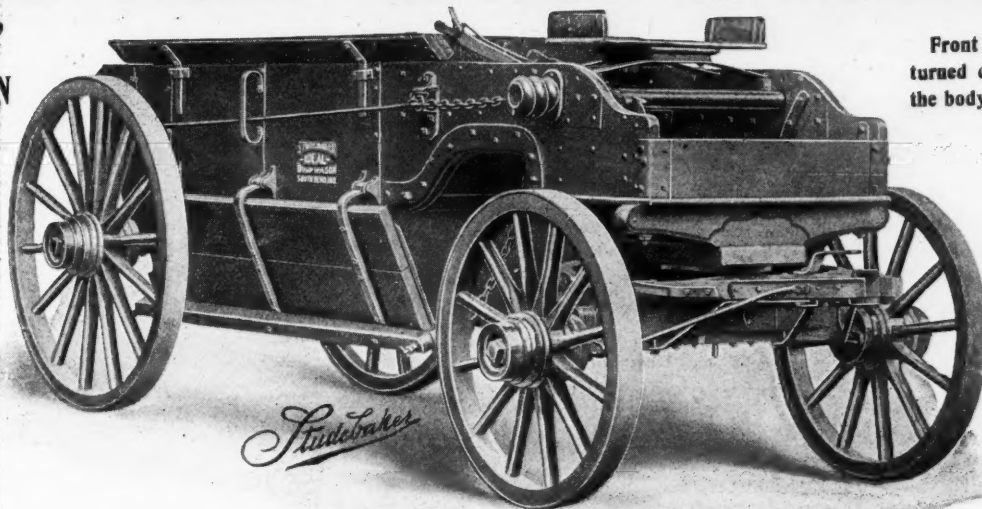


# STUDEBAKER

## "IDEAL" DUMP WAGON

Has the  
simplest  
dumping  
attachment  
all on  
outside

The shortest  
coupled and  
easiest draft  
bottom dump  
wagon made



Front wheels can be  
turned completely under  
the body, and wagon can  
be turned  
in its own  
length.

When you  
want real  
dump wagon  
satisfaction  
try the  
Studebaker  
"Ideal"

Write  
for  
catalog

It is what its name implies—the "Ideal"

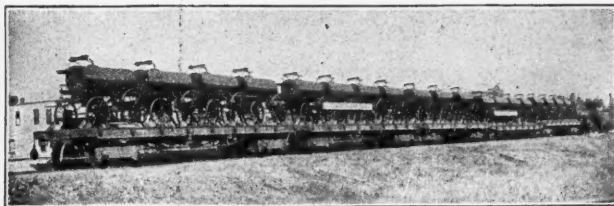
**STUDEBAKER BROS. MFG. CO., South Bend, Ind.**

Manufacturers Wagons, Sprinklers, Sweepers, Carriages and Harness  
Also Gasoline Touring Cars and Electric Automobiles for every purpose

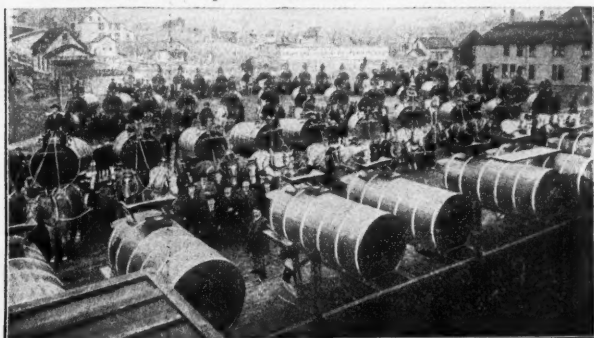
NEW YORK BRANCH:

Broadway and 7th Ave. at 48th St.

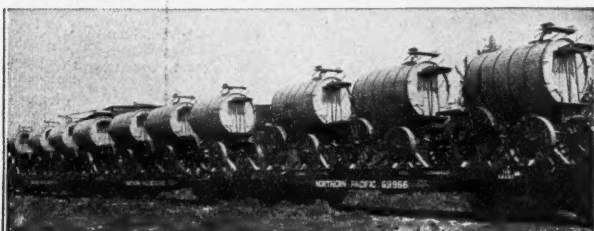
Branches also at Chicago, Kansas City, Dallas, Denver,  
Salt Lake City, San Francisco, Portland, Ore.



Train-load of Austin Sprinklers for the Parks of Greater New York.



Train-load of Austin Sprinklers purchased by the City of St. Paul, the largest single shipment of Sprinklers ever made by any one company.



Train-load of Austin Sprinklers purchased by the United States Government, for use in Yellowstone Park.

## Train-Loads of Austin Sprinklers

A few years ago we were selling Austin Sprinklers by carloads. Now they go out by **Train-loads**.

Some of these train-load purchasers are: **The United States Government**, for use in the **City of Washington**, the cleanest city in America, which is swept and sprinkled by **Austin Sweepers and Sprinklers**; and for **Yellowstone Park**, the Greatest Park in the World, in which **Austin Sprinklers** are used almost exclusively.

**Greater New York** gets a train-load every now and then, while all the large cities are continually buying them either in train-loads or numerous car-loads.

They are made in six sizes and seven styles, and are the best and most efficient Sprinklers that were ever on wheels.

We certainly are getting the cream of the Sprinkler trade. Send for our large illustrated catalogue and you will know why.

**The Austin-Western Company, Ltd.,**  
**CHICAGO, ILL.**

# BUYERS' AND BUSINESS DIRECTORY

For those seeking Material, Machinery or Special Service for Municipal or Public Work. The names in this list are considered the Leaders in their respective lines. An index to their notices will be found on page 7. If you fail to find what you want write to us. Please mention the Municipal Journal and Engineer when writing to advertisers. . . .

## Air Compressors.

American Well Works.

## Air Lift Systems.

American Well Works.  
Hudson Eng'g & Cont'g Co.

## Ambulances.

Fulton & Walker Co.

## Artesian Wells and Machinery.

American Well Works.  
Artesian Well & Supply Co.  
Hudson Eng'g & Cont'g Co.

## Artificial Stone Sidewalks.

Warren Brothers Co.

## Asphalt.

Barber Asphalt Co., A. L.  
California Asphaltum Sales Agency.  
Globe Asphalt Co.  
Wadsworth Stone & Paving Co.

## Asphalt Paving Plants.

Hetherington & Berner.  
Kelly-Springfield Road Roller Co.  
Wadsworth Stone & Paving Co.

## Asphalt Rollers.

Austin Mfg. Co.  
Buffalo Steam Roller Co.  
Erie Machine Shops.  
Kelly-Springfield Road Roller Co.

## Asphalt Machinery

Hetherington & Berner.  
Kelly-Springfield Road Roller Co.

## Bitulthic Pavement.

Warren Brothers Co.

## Blue Prints.

Soltmann, E. G.

## Boiler and Pipe Coverings.

Keasbey Co., Robt. A.

## Books on Municipal Subjects.

Municipal Journal and Engineer.

## Brick, Paving, Building and Sewer.

Barr Clay Co.  
Bessemer Limestone Co.  
Clearfield Clay Working Co.  
Collinwood Shale Brick Co.  
Clinton Paving Brick Co.  
Federal Clay Products Co.  
Flint Brick & Coal Co.  
McAvoy Vitriified Brick Co.  
Metropolitan Paving Brick Co.  
New England Steam Brick Co.  
Pittsburg-Buffalo Co.  
Purinton Paving Brick Co.  
Suburban Brick Co.  
Texas & Pacific Coal Co.  
Thornton Fire & Vitriified Paving Brick Co.  
United Brick Co.  
Wassall Clay Co.

## Bridges.

Climax Road Mach'y Co

## Castings.

Davison Foundry Co.

## Cement.

Nazareth Cement Co.  
Warner Co., Chas.  
Warren Brothers Co.

## Chemical and Sanitary Examinations.

Lederle Laboratories.

## Coal Tar.

Barrett Mfg. Co.  
Warren Brothers Co.

## Concrete Structural Work.

Warren Brothers Co.

## Contractors' Supplies and Machinery.

Austin Mfg. Co.  
Climax Road Machine Co.  
Maslins & Sons, John.

## Covers, Manhole, Catch Basin and Inlet.

S. Cameron Corson.  
Davison Foundry Co.

## Creosoted Wood.

Kettle River Quarries Co.  
U. S. Wood Preserving Co.

## Cutler Mailing System.

Cutler Mfg. Co.

## Dust Layer.

Barrett Mfg. Co.  
Westmunte Co. of America

## Draftsmen's Supplies.

Soltmann, E. G.

## Duplicators.

Daus, Duplicator Co., Felix H. A.

## Dump Wagons. (See Wagons.)

## Earth Handling Machinery.

Austin Mfg. Co.  
Climax Road Machine Co.

## Electric Light Poles.

Electric Railway Equipment Co  
Southern Exchange Co.

## Engineers.

Alvord, John W.  
Bandy & Terrell.  
Brossman & King.  
Brown, Le Grand.  
Caird, Jas. M.  
Child, Stephen.  
City Wastes Disposal Co.  
Cottingham, Chas  
Denniston & Co.  
Dow, A. A.  
Duluth Engineering Co.  
Fanning, J. T.  
Folwell, A. Prescott  
Ford, Owen.  
Hart Co., Jas. A.  
Hawkes, Thomas I  
Hering, Rudolph, & Geo. W. Fuller.  
Howard, J. W.  
Hudson Eng'g & Cont'g Co.  
Iowa Engineering Co.  
A. A. Knudson.  
Kuichling, Emil.  
Lederle Laboratories.  
Mahoney, John.  
Morse, W. F.  
Newhall, Jno. B.  
Potter, Alexander  
Schott, W. H.  
Sheffield & Co., O. H.  
Shields, W. S.

## Snow & Barbour.

Swinburne & Clark.  
Williams, Proctor & Potts.  
Wise & Watson.  
Woodward, Roland

## Filing Devices.

Berger Mfg. Co.

## Fire Alarm Systems.

Star Electric Co.

## Fire Department Supplies.

Fabric Fire Hose Co.  
Seagrave Co., The.

## Fire Hose.

Eureka Fire Hose Co.  
Fabric Fire Hose Co.

## Fire Hose Nozzles.

Fabric Fire Hose Co.

## Fireproof Construction.

Berger Mfg. Co.

## Flushing Machines for Street Cleaning.

Sanitary Street Flushing Machine Co.

## Flush Tanks.

Pacific Flush Tank Co.

## Garbage Disposal.

Morse, W. F.

## Gas Meters.

Pittsburg Meter Co.

## Gasoline Street Lamps.

Cleveland Street Lighting Co.

## Hydrants.

Washington Pipe & Foundry Co.

## Inspector of Castings.

Conard, W. R.



## BUSINESS DIRECTORY----Continued.

**Landscape Architects.**  
Child, Stephen.

**Lead.**  
Leadite Co.

**Lighting Systems.**  
Cleveland Street Lighting Co.

**Macadam, Wadsworth.**  
Wadsworth Stone & Paving Co.

**Mail Chutes.**  
Cutler Mfg. Co.

**Metal Furniture**  
Berger Mfg. Co.

**Meter Seals.**  
Safety Meter Lock Co

**Meters for Water Supply.**  
Buffalo Meter Co.  
Hersey Mfg. Co.  
Neptune Meter Co.  
Pittsburg Meter Co  
Thomson Meter Co.  
Union Water Meter Co.

**Meter Testing Apparatus.**  
Pittsburg Meter Co.

**Paving and Paving Materials.**  
Barber Asphalt Co., A. L.  
Barr Clay Co.  
Barrett Mfg. Co.  
Bessemer Limestone Co.  
California Asphaltum Sales Agency.  
Chatfield & Woods Co.  
Clearfield Clay Working Co.  
Collinwood Shale Brick Co.  
Flint Brick & Coal Co.  
Globe Asphalt Co.  
Hassam Paving Co.  
Kettle River Quarries Co.  
McAvoy Vitrified Brick Co.  
Metropolitan Paving Brick Co.  
New England Steam Brick Co.  
Pittsburg-Buffalo Co.  
Purinton Paving Brick Co.  
Suburban Brick Co.  
Texas & Pacific Coal Co.  
Thornton Fire and Paving Brick Co.  
United Brick Co.  
U. S. Wood Preserving Co.  
Wadsworth Stone & Paving Co.  
Warren Brothers Co.  
Wassall Clay Co.

**Paving Pitch.**  
Barrett Mfg. Co.

**Pipe, Iron.**  
Abendroth & Root Mfg. Co.  
Central Foundry Co.  
Conard, W. R.  
McWane Pipe Works.  
Washington Pipe & Foundry Co

**Poles, Cedar.**  
Southern Exchange Co.

**Police Patrol Wagons.**  
Fulton & Walker Co.

**Pumping Machinery.**  
American Well Works.  
Bethlehem Fdy. & Mach. Co.  
Lawrence Machine Co.  
Maslins & Son, John.  
Rife Pumping Engine Co.

**Portable Asphalt Plants.**  
Hetherington & Berner.

**Pressure Regulators.**  
Pittsburg Meter Co.

**Road Machinery.**  
Austin Mfg. Co.  
Climax Road Machine Co.

**Road Rollers.**  
Austin Mfg. Co.  
Buffalo Steam Roller Co.  
Climax Road Machine Co.  
Erie Machine Shops.  
Kelly-Springfield Road Roller Co.

**Rock Crushers.**  
Austin Mfg. Co.  
Climax Road Machine Co.

**Roofing and Roofing Material**  
Barber Asphalt Co., A. L.  
California Asphaltum Sales Agency.  
Warren Brothers Co.

**Rubber Tires.**  
Firestone Tire & Rubber Co.

**Scrapers, Wheeled and Drag**  
Austin Mfg. Co.  
Climax Road Machine Co.

**Sewage Disposal.**  
American Dittler Sewage Disposal Co.  
City Wastes Disposal Co.  
Ellis Company, The.  
Lewis & Kitchen

**Sewer Pipe.**  
Buckeye Fire Clay Co.  
East Ohio Sewer Pipe Co.  
Great Northern Sewer Pipe Co.  
Ohio River Sewer Pipe Co.  
Stratton Fire Clay Co.

**Sign Posts.**  
American Street Sign Co.

**Sluice Gates.**  
Coldwell-Wilcox Co.

**Steel Office Furniture.**  
Berger Mfg. Co.

**Storm Sewer Trap.**  
S. Cameron Corson.

**Street Cleaners.**  
Sanitary Street Flushing Machine Co.

**Street Lamps and Lighting.**  
Cleveland Street Lighting Co.

**Street Flushing Machines.**  
Sanitary Street Flushing Machine Co.

**Street Signs.**  
American Street Sign Co.  
Balto. Enamel & Novelty Co.

**Street Sprinklers.**  
Austin-Western Co.  
Studebaker Bros. Mfg. Co.

**Street Sweepers.**  
Acme Road Machinery Co.  
Austin-Western Co.  
Studebaker Bros. Mfg. Co.

**Testing Laboratories.**  
The Lederle Laboratories.

**Trench Machines.**  
Carson Trench Machine Co.

**Valves for Sewage Disposal Works.**  
Shields, W. S.

**Wadsworth Macadam.**  
Wadsworth Stone & Paving Co.

**Wagons and Carts.**  
Austin Mfg. Co.  
Climax Road Machine Co.  
Everett Mfg. Co.  
Fulton & Walker Co.  
Glen, Henry M., Mfg. Co.  
Haywood Wagon Co.  
Michigan Wagon & Mfg. Co.  
Senderling Mfg Co.  
Studebaker Bros. Mfg. Co.  
Tiffin Wagon Co.  
Troy Wagon Wks Co.  
Watson Wagon Co.

**Water Analysis.**  
Caird, Jas. M.

**Water Meters.**  
Buffalo Meter Co.  
Hersey Mfg. Co.  
Neptune Meter Co.  
Pittsburg Meter Co.  
Thomson Meter Co.  
Union Water Meter Co.

**Water Works Tools, Pipe and Supplies.**  
Central Foundry Co.  
Ellis-Ford Co.  
McWane Pipe Works.

**Well Drilling.**  
Artesian Well & Supply Co.

**Well Machinery.**  
American Well Works.  
Austin Mfg. Co.  
Bethlehem Fdy. & Mach. Co.  
Loomis Co. Tiffin, Ohio.

**Wires and Cables.**  
Okonite Co.

**Wooden Water Pipe.**  
Washington Pipe & Foundry Co.

**Wood Pavements.**  
Kettle River Quarries Co.  
U. S. Wood reseeing Co.

**SUBURBAN BRICK COMPANY**  
MANUFACTURERS OF  
Barnard Vitriified Paving Brick and Blocks  
WHEELING. W. VA.

**THE BARR CLAY COMPANY**  
MANUFACTURERS OF  
**PAVING BRICK**  
STREATOR, ILL.



## A Matter of Pride

WHEN you pave your streets with Wassall Block you have a pavement good and permanent enough to brag about.

MADE BY  
**THE WASSALL CLAY CO.**  
GLOUSTER, OHIO



## THE Clearfield Clay Working Co.

Manufacturers of

**"CLEARFIELD VITRIFIED PAVING BLOCK"**

VITRIFIED BRICK  
OF ALL KINDS

CLEARFIELD, PENN'A.

## Collinwood Shale Brick Co.



Manufacturers of  
Collinwood  
Paving  
Brick and  
Block and  
Vitrified  
Sewer  
Brick

OFFICE: 854 ROSE BLDG., CLEVELAND, O.  
PLANT: COLLINWOOD, O.

T. B. McAVOY  
President and Treasurer

J. C. McAVOY  
Secretary and General Manager

## THE McAVOY VITRIFIED BRICK CO.

MANUFACTURERS OF

**Shale Paving Brick and Blocks**

Office: German-American Bldg., Philadelphia  
Works: Perkiomen Junction, Pa.

## Clinton Paving Brick Co.

Manufacturers of the famous

**"CLINTON BLOCK"**

For the Central Western States

Works and Office: - - CLINTON, IND.

## THORNTON FIRE AND VITRIFIED PAVING BRICK CO.

Manufacturers of

Ground Fire Clay and Fire, Paving and Building Brick.

GRAFTON, WEST VIRGINIA.



Laying Federal Clay Products Company Brick, Hayes, Pa.

I. W. BRISON, Sales Agent.

## Federal Clay Products Co.

232 Fifth Avenue, PITTSBURG, Pa.

MANUFACTURERS OF

**Paving Brick and Block**

Building, Tunnel and Sewer Brick

Sewer Pipes, Hollow Building Block

Electric Wire Conduits





## The Best Paving Block Made

FOUR FACTORIES  
DAILY OUTPUT  
**300,000**

The Metropolitan Paving  
Brick Company

CANTON, - - - OHIO

D. V. PURINGTON, President  
C. H. CHAMBERLAIN, Treasurer

W. S. PURINGTON, Vice-President and General Manager

W. H. TERWILLIGER, Secret.  
F. G. MATTESON, Sales Mgr.

## PURINGTON PAVING BRICK COMPANY GALESBURG, ILLINOIS

MANUFACTURERS OF THE **CELEBRATED PURINGTON BRICK**

Annual Capacity, 70,000,000

WRITE FOR SAMPLES, PRICES AND SUCH OTHER INFORMATION AS IS DESIRED

JOS. G. BUTLER, Jr., Pres.

CHAS. M. CROOK, Gen. Mgr.

C. S. CROOK, Sec'y & Treas.

## BESSEMER LIMESTONE COMPANY YOUNGSTOWN, OHIO

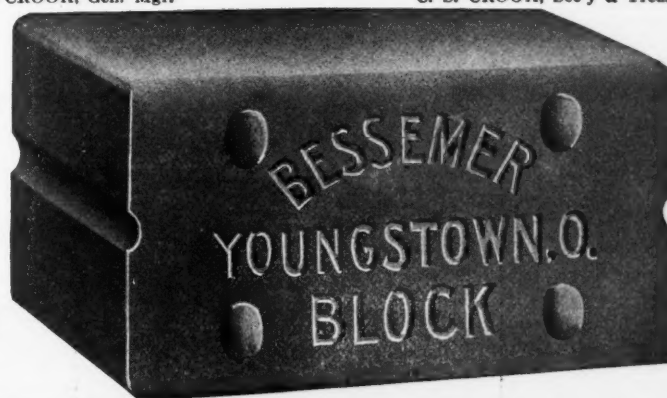
High Grade Paving, Sewer and Face

### BRICK

Capacity **100,000** per Day

### SCREENED LIMESTONE

Capacity **3000 tons** per Day



## TEXAS & PACIFIC COAL CO.

Miners of Coal and Manufacturers of  
**THURBER STREET PAVING BRICK,**  
**BUILDING BRICK and SIDEWALK TILE.**

Our Vitrified Paving Brick is equal to any manufactured in the country and  
Contractors and Architects specify Thurber Building Brick as a standard.

Prices and samples mailed on application.

Correspondence respectfully solicited.

Address ARTHUR S. GOETZ, General Sales Agent, Ft. Worth, Texas.



# ASPHALT PAVING MACHINERY

Plants for the Manufacture of Asphalt Streets

The Hetherington "Municipal," "Semi-Portable," and "Rail-way"

These plants have no equals and represent the latest and best methods.

We Install Plants in Any Part of the World, Complete and Ready for Service

## HETHERINGTON AND BERNER.

INDIANAPOLIS, INDIANA, U. S. A.



## VITRIFIED PAVING BRICK and BLOCK

Repressed and Wire Cut

LET US FIGURE WITH YOU

THE UNITED BRICK COMPANY  
Conneaut, Ohio

## "The Wadsworth" Macadam

### SPECIAL NOTICE

We will sell to any  
MUNICIPALITY  
COUNTY OR  
CONTRACTOR

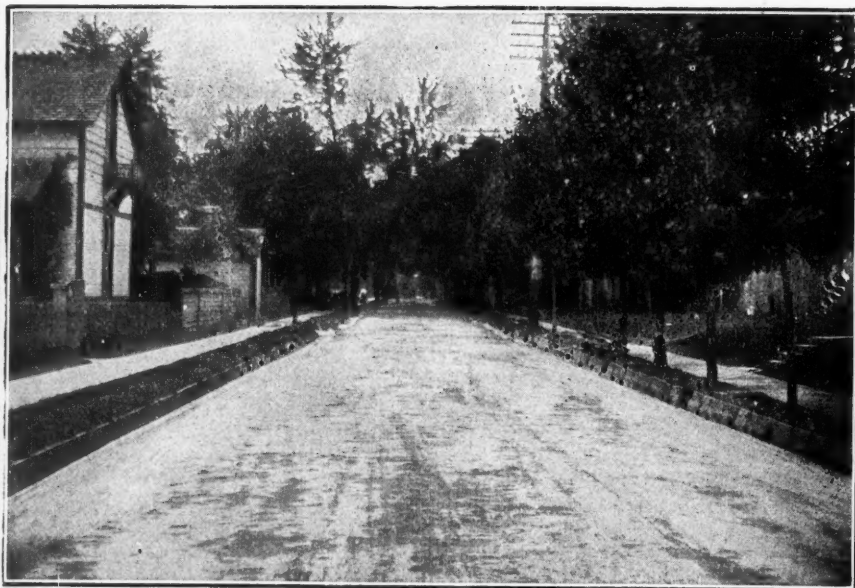
## Kentucky Rock Asphalt

for Building Road-  
ways. The process  
is not patented.  
"The Wadsworth"  
Macadam means

## Natural Rock Asphalt

Containing not less than 8% natural bitumen

## *The Coming Roadway*



SIMPSON STREET, LOOKING WEST, TROY, OHIO

## THE WADSWORTH STONE & PAVING COMPANY

Miners, Manufacturers and Shippers of KENTUCKY  
ROCK ASPHALT in Mastic or Powder Form

405 Bessemer Bldg., PITTSBURGH, PA.



# Books Relating to Municipal and Public Works

WRITTEN BY MEN WHO ARE  
ACKNOWLEDGED AUTHORITIES

**STREET CLEANING AND THE DISPOSAL OF A CITY'S WASTE.**—By Geo. E. Waring, Jr. 230 pp.; 30 illustrations. \$1.25.

**HANDBOOK ON SANITATION.**—A Manual of Theoretical and Practical Sanitation. For Students and Physicians; for Health, Sanitary, Tenement-house, Plumbing, Factory, Food, and Other Inspectors; as well as for Candidates for all Municipal Sanitary Positions. By George M. Price, M. D., Medical Sanitary Inspector, Department of Health, New York City, etc. 12mo, xii + 317 pages, 31 figures. Cloth, \$1.50. Second Edition, Revised and Enlarged.

**MUNICIPAL ENGINEERING AND SANITATION.**—By M. N. Baker, Assoc. Ed'r of Eng'ing News. \$1.25 net.

**CONTENTS.**—Ways and Means of Communication. Municipal Supplies. Collection and Disposal of Wastes. Protection of Life, Health, and Property. Administration, Finance, and Public Policy.

**PRINCIPLES OF SANITARY SCIENCE AND THE PUBLIC HEALTH; WITH SPECIAL REFERENCE TO THE CAUSATION AND PREVENTION OF INFECTIOUS DISEASES.**—By William T. Sedgwick, Prof. of Biology, etc., Mass. Institute of Technology. \$3.00 net.

**CONTENTS.**—Health and Disease. Infection and Contagion, Their Dissemination and Control. Fundamental Problems of Public Sanitation.

**SEWAGE AND THE BACTERIAL PURIFICATION OF SEWAGE.**—By Samuel Rideal, D. Sc. (Lond.). 8vo, viii + 278 pages, 47 figures. Cloth, \$3.50.

**CONTENTS.**—Characters of Sewage, and Primary Methods of Disposal. Chemical Analysis of Sewage and Effluents. Bacteria Occurring in Sewage. Chemical Changes Produced by Bacteria. Irrigation and Sewage Farms. Subsidence and Chemical Precipitation. Sterilization. Bacterial Purification. Agricultural Value of Bacterial Effluents. Distribution and Distributors Trade Effluents.

**SEWAGE DISPOSAL IN THE UNITED STATES.**—By Geo. W. Rafter, M. Am. S. C. E., and M. N. Baker, Ph. B. 8vo. Cloth 598 pp. 116 illus. 7 folding plates. \$6.00.

**CONTENTS.**—The Infectious Diseases of Animals. On the Pollution of Streams. The Self-Purification of Running Streams and the Rational View in Relation to the Disposal of Sewage by Discharge Into Tide-Water. Composition of Sewage Muds. Legal Aspects of the Case. Quantity of Sewage and Variation in Rate of Flow. General Data. On Nitrication. Chemical Precipitation. Broad Irrigation. On Silos. The Effect of the Pollution of Streams by Manufacturing Streams on the Life of Fish. Description of Sewage Works Throughout the U. S.

**STREET PAVEMENTS AND PAVING MATERIALS.**—A Manual of City Pavements; the Methods and Materials of Their Construction. For the Use of Students, Engineers, and City Officials. By Geo. W. Tillson, C. E. 8vo, xii + 532 pages, 60 figures. Cloth, \$4.00.

**CONTENTS.**—The History and Development of Pavements. Stone. Asphalt. Brick-clays and the Manufacture of Paving-brick. Cement, Cement Mortar, and Concrete. The Theory of Pavements. Cobble and Stone-block Pavements. Asphalt Pavements. Brick Pavements. Wood Pavements. Broken-stone Pavements. Plans and Specifications. The Construction of Street-car Tracks in Paved Streets. Width of Streets and Roadways, Curbs, Sidewalks, etc. Asphalt Plants.

**MUNICIPAL PUBLIC WORKS; THEIR INCEPTION, CONSTRUCTION AND MANAGEMENT.**—By S. Whinery, C. E., 341 pages. Cloth, \$1.50 net.

**CONTENTS.**—Importance of Municipal Public Works. Municipal Organization. Preparations for Municipal Work. Direct Work vs. Contract Work. Advertising Opening Bids, and Awarding Contracts. The Contract. The Contractor. The Supervision of Public Work. Maintenance and Repair of Public Works. Economy, Real and False. Guaranteeing Public Work. Special Assessments. Municipal Accounts and Uniform Accounting. Municipal Ownership. Quasi-Public Corporations and Their Control.

**EARTH AND ROCK EXCAVATION:** A practical Treatise.—By Charles Prelini, C. E., Author of "Tunneling." With Tables, and many Diagrams and Engravings. 8vo. Cloth. Illustrated. About 365 pages. Price, \$3.00 net.

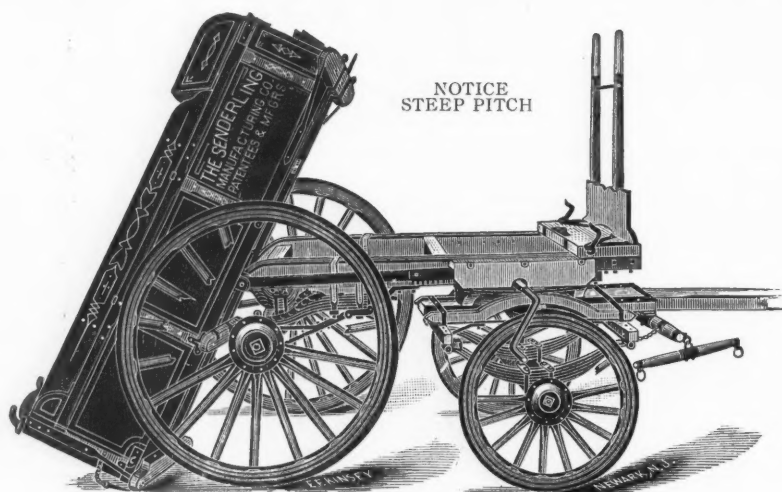
**CONTENTS.**—Graphical Representation of Earthwork. Plans and Profiles. Methods of Calculating Quantities and Cost of Earthwork. Cuts and Fills. Borrow-pits and Spoil-banks. Classification of Materials. Rock Excavations without Blasting. Excavation of Rock by Blasting; the Drilling of the Holes. Rock Excavation by Blasting; Explosives and Their Transportation and Storage. Rock Excavation by Blasting; Fuses, Firing and Blasting. Earth Excavation; Hand-tools, Machine Excavation. Earth Excavation; Continuous Digging-machines. Earth Excavation; Intermittent Digging-machines. Methods of Hauling Excavated Materials on Level Roads. Hauling Excavated Materials on Horizontal Roads. Method of Hauling Excavated Materials on Inclined Roads. Vertical Hauling or Hoisting of Excavated Materials. Transporting Excavated Materials by Aerialways. Transporting Excavated Materials by Cableways. Transporting Excavated Materials by Telferage. Chains, Ropes, Buckets, Engines, and Motive Power. Animal and Mechanical Labor. The Direction of Excavation Work. Shrinkage of Earth. Cost of Earthwork. Examples of Large Canal Excavation Works. Index.

These or any other technical books supplied at publishers' prices by

Municipal Journal & Engineer FLATIRON BLDG., MADISON SQUARE New York

— The —

# SENDERLING

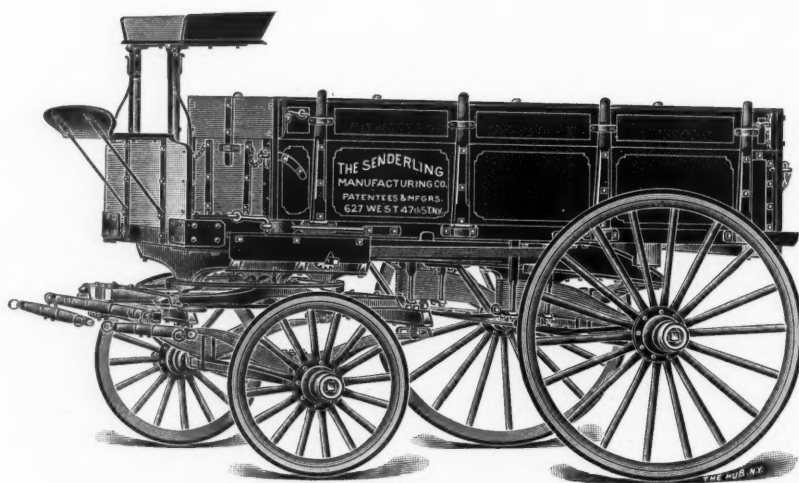


**Contractors'  
Standard  
Dumper**  
2 Yards  
Capacity

Full Spring Mounted

## DUMPING TRUCKS

**Brick  
Truck**  
1,500  
Capacity



**No Chains**

**Direct Acting**

**No Cast Iron**

If you handle any material which is dumped or are handling  
material which can be dumped

These Trucks will save you money

**THE SENDERLING MFG. CO. 622 West 47th St.  
NEW YORK CITY**



# **A SIGNIFICANT FACT**

Every Letter in the Alphabet Has a Good Word for

## ***BITULITHIC***

So Has Every Engineer Who Has Seen It.

Adaptable	Neat-appearing
Best	Original
Compact	Patented
Durable	Quality
Economical	Resilient
Filth-proof	Safe-footing
Greatest	Trustworthy
Honest	Unequaled
Inexpensive	Valuable
Jointless	Waterproof
Known	Xceptional
Lasting	Yielding (elastic)
Matchless	Zenith

Let us send you literature fully explaining these 26 superior qualities of Bitulithic. Write at once. Do it now.

---

**WARREN BROTHERS COMPANY**  
**BOSTON, MASS.**

REGISTERED TRADE MARKS

"BITULITHIC" "PURITAN" "BITROCK" "BITUMINOUS MACADAM" "BITUSTONE"

## HERSEY ROTARY WATER METERS

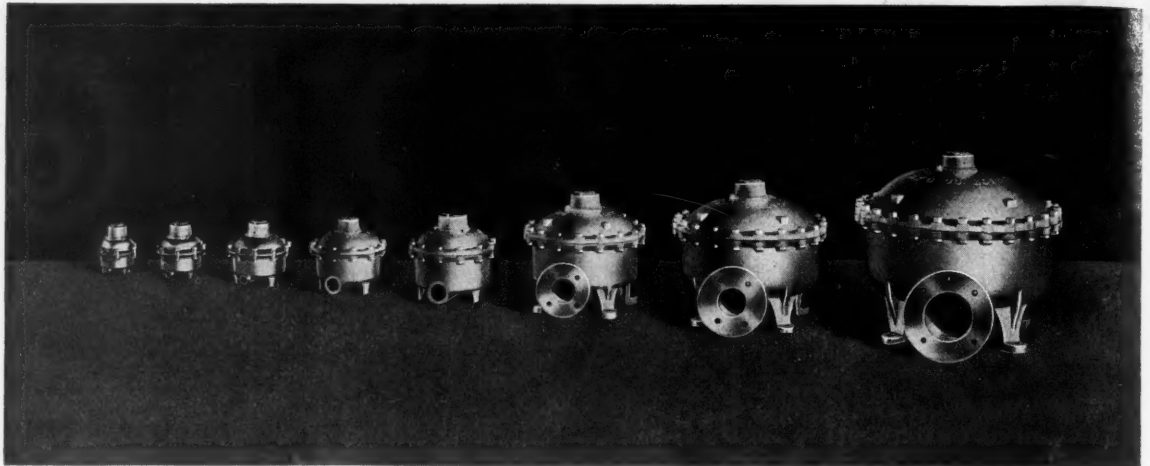
5/8-inch to 6-inch.

ALSO

**DISC and  
TORRENT METERS**

**HERSEY MFG. CO.**  
SO. BOSTON, MASS.

714 Tremont Temple • Boston  
220 Broadway • New York City  
470 N. Front St. • Columbus, O



## The HASSAM PAVING CO.

Patentees of

**HASSAM PAVEMENTS AND HASSAM FOUNDATIONS**

**Cheapest to lay, Unrivalled to  
last, Finest to look at**

Write for  
Information

**Save 25% cost, Always reliable  
Good with all pavements**

Central Exchange Bldg., Worcester, Mass.

## THE STANDARD FOR RUBBER INSULATION

**OKONITE WIRES  
MANSON TAPE**

1889 Paris Exposition Medal  
1893 World's Fair Medal

WILLARD L. CANDEE, } Managers  
M. DURANT CHEEVER, }



TRADE MARK REG. U.S. PAT. OFF.

**OKONITE TAPE  
CANDEE  
WEATHER-PROOF  
WIRES**

GEO. T. MANSON, General Supt.  
W. H. HODGINS, Secretary

**THE OKONITE Co., Ltd.**  
253 BROADWAY NEW YORK CITY

## NEPTUNE METER COMPANY

MANUFACTURERS OF

**"TRIDENT" and "TRIDENT-CREST" Water Meters**

MAIN OFFICE

120 LIBERTY ST.

NEW YORK CITY

TELEPHONE

5292 CORTLANDT

FACTORY

LONG ISLAND CITY, NEW YORK

TELEPHONE, No. 960 GREENPOINT

BRANCH OFFICES

CHICAGO, 54 TO 60 SO. CANAL ST.

TELEPHONE, 679 MAIN

BOSTON, 38 OLIVER ST.

TELEPHONE, 845 BROOKLINE

ATLANTA, 12 EQUITABLE BLDG.

SAN FRANCISCO, 202 MARKET ST.



